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TROPICAL DISEASES BULLETIN

Vol. 4. 1914. No. 9.

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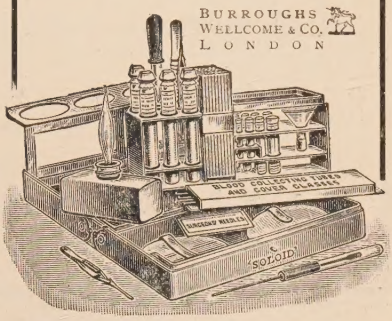

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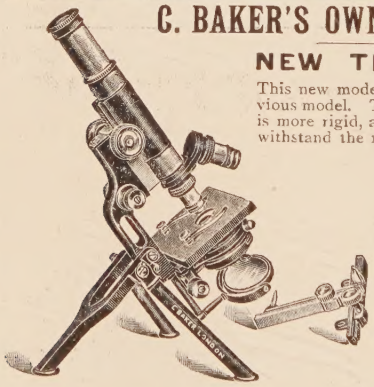

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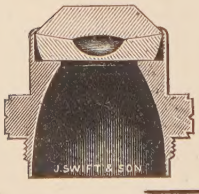

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TROPICAL DISEASES BUREAU.

TROPICAL DISEASES BULLETIN.

Vol. 4.] 1914. [No. 9.

PAPPATACI FEVER, DENGUE AND UNCLASSED FEVERS.

LEHMANN. **Phlebotomus und Papatacikrankheit.** — *Berlin Klin. Wochenschr.* 1914. Feb. 23. Vol. 51. No. 8. p. 378.

The author in a clinical lecture describes the symptoms of this disease as being like those of influenza. It appears only in the summer months and is due to the pappataci flies which abound in Southern Europe, India, and South America, and bite only at night. The incubative period is five days, and the fly appears to be infective eight days after ingestion of blood from a patient suffering from the fever. He states that formalin is the best insecticide. In the discussion SEIFERT drew attention to the fact that the disease had also been observed in Switzerland. The paper contains no new facts.

P. W. Bassett-Smith.

MANSION (J.). **Les Phlébotomes en Corse.**—*Bull. Soc. Path. Exot.* 1913. Nov. Vol. 6. No. 9. pp. 637–641. With 1 text fig.

The existence of sandflies and sandfly fever in Corsica has been reported already (see this *Bulletin*, Vol. 1, p. 238). After six months' fruitless search Mansion captured 56 male and 19 female Phlebotomi between September 11 and October 20. The weather had been very hot and dry, and the insects appeared after the first rain. He describes and figures the male appendages of the Phlebotomus of Corsica, and claims that it is a new species, naming it *P. legeri*; but neither the description nor the drawing is sufficient to distinguish it from *Phlebotomus major*, vel *perniciosus*. The average length of time which the flies survived in captivity was 45 hours in a dry atmosphere, and 88 when the air was moist. He could not induce the females to suck blood, and he was unsuccessful in finding larvae or hatching ova. Four persons inhabiting a house in which sandflies distended with blood were discovered suffered from symptoms which resembled those of Phlebotomus fever.

C. Birt.

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MANSION (G.). **Les Phlébotomes européens.**—*Bull. Soc. Path. Exot.* 1914. July. Vol. 7. No. 7. pp. 584–590. With 7 text figs.

This is a difficult paper to review as the technical descriptions of the different species cannot be further condensed. There are five species of Phlebotomus known in Europe—*P. papatasii*, *P. perniciosus*, *P. minutus*, *P. nigerrimus* and *P. legeri*. Of these the first has the widest range; the last is only known to exist in Corsica and *P. perniciosus* has only been found in Malta and Gozo.

The characters of the armature of the genital organs of the male, the relative length of the segments of the palpi, and the venation of the wings are important differentiating characters and are figured for *papatasii*, *perniciosus* and *legeri*. It is a curious fact that the *P. papatasii*, so common in Italy and the Mediterranean basin generally, is unknown in Corsica, and that *P. perniciosus*, frequent in Malta, is not found in Italy; possibly on further examination this restricted distribution will not be found to be correct.

P. W. B.-S.

NEWSTEAD (R.). **Notes on Phlebotomus, with Descriptions of New Species. Part 2.**—*Bull. Entomol. Research.* 1914. Sept. Vol. 5. No. 2. pp. 179–192. With 12 figs.

The author gives a description of four new species of Phlebotomus—three from Africa, *P. ingrami*, *P. simillimus*, and *P. bedfordi*, and one from the Malay States, *P. stantoni*. The differential characters of seven other known species are described and figured. It is impossible to do justice to this paper in a short review, as it is very technical. The difficulty of the determination of what are true species is pointed out, the individual variations being so great, and he particularly draws the attention of students to the unreliability of describing a species on one set of characters only; it is a summation of factors that is necessary to establish a species. This is a point which might be usefully remembered in the case of many other small imperfectly known organisms. The importance of making careful drawings is also emphasised.

P. W. B.-S.

D'ORMAY (Lalluyaux). **Epidémie de Dengue en Cochinchine en 1873. Extrait des Rapports de l'Hôpital de Saïgon.**—*Ann. d'Hyg. et Méd. Colon.* 1914. Apr.–May–June. Vol. 17. No. 2. pp. 535–543.

Dengue first appeared in Cochinchina in an epidemic form during 1873, when it was imported from Hong Kong. A description of the epidemic and details of some cases are given, showing the extreme infectiousness of the disease. The "break bone" character of the pains and marked evidence of eruption were noticeable features, the latter being less marked among the Annamites though they suffered severely from the pains, which lasted several weeks and were attended with much debility.

No treatment had any specific effect.

[This is a very full account of an epidemic of true dengue, so well described in MANSON'S handbook from his experiences of the same disease at Amoy, and it differs very materially from those epidemics which have been reported lately from Annam and Tonkin.]

P. W. B.-S.

LAVINDER (C. H.) & FRANCIS (E.). **The Etiology of Dengue: an Attempt to produce the Disease in the Rhesus Monkey by the Inoculation of Defibrinated Blood.**—*Jl. of Infectious Diseases.* 1914. Sept. Vol. 15. No. 2. pp. 341–346. With 4 charts.

The authors give a short account of some experimental work carried out by them during 1913 in the United States Marine Hospital, Savannah, Georgia. Recognising that in the study of the etiology of dengue there was a want of animal experimental investigations, they took advantage of the presence of an epidemic of the disease in the city to make inoculations of blood from the patients into Rhesus monkeys. In these experiments the blood was taken from the arm veins of patients in various stages of the disease (2nd to 5th day); it was then defibrinated and injected after a period of from two to six hours, except in one, when the blood was kept for 24 hours in an ice chest. Quantities varying from 3–10 c.c. were injected either intravenously or subcutaneously from eight carefully selected cases into nine perfectly healthy monkeys. The animals were kept under careful observation for fourteen days after inoculation, during which time none of them showed any indication of disease. Attempts to obtain any specific organism from the blood by cultures in glucose broth were negative. As a leukopenia is constantly found in dengue, daily leucocyte counts were made from four monkeys, two injected intravenously from dengue cases, one injected from a case of mumps, and one from an untreated animal as control; the only result of these observations was to show the great irregularity in the number of the white cells present from day to day even in healthy animals, these varying from 12,000 to 24,000 per cmm.

It would appear, therefore, that the Rhesus monkey either cannot contract the disease, or with it shows no signs of illness.

[Further experiments are required to prove this; for instance, the injection of fresh blood without the two to six hours' delay.]

P. W. B.-S.

DEEKS (W. E.). **Six Day Fever in Panama.**—*Ann. Trop. Med. & Parasit.* 1914. July 22. Vol. 8. No. 2. pp. 357–365. With 7 charts.

The occurrence of a small number of cases of six-day fever at Panama has been previously described by the author. He now records fifty cases which have been admitted to the Ancon Hospital. Clinically, these agree almost exactly with those commonly found in India and the Far East, called by ROGERS seven-day fever.

There is the typical saddle back temperature curve, the leucopenia, backache, and erythematous rash, but at the Ancon Hospital a palpable spleen was generally present (not noted in Indian cases). The fever appears to be endemic and infective, but in such a way that either many must be naturally immune, or there is an infecting agent that does not convey the disease to all. In the hospital, where no special precautions were taken, the disease did not spread; the infection is therefore probably only present in the pre-febrile stage, or some transmitter is required which was not present in the hospital. The author believes it to be a distinct disease allied to the exanthemata, introduced into the Western hemisphere through the Ancon Post Office, the enlargement of the spleen distinguishing it from dengue.

P. W. B.-S.

LEGER (Marcel). **Maladies Fébriles pouvant prêter à Confusion avec le Paludisme.**—*Le Paludisme en Corse.* pp. 45–63. (Publication de l'Institut Pasteur 1914. Laval: L. Barnéoud & Cie.)

Errors of diagnosis between other fevers and malaria often bring discredit upon anti-malarial measures; for example, the absence of improvement of these fevers when under quinine treatment, as in cases of undulant and typhoid fevers and in tuberculosis. Also the diminution of cases of fever in a district caused by an improved water supply is sometimes pointed out as indicating a decrease of malaria, whereas really the malarial cases remain at the usual level. In Corsica the principal diseases mistaken for malaria are typhoid and para typhoid infections, undulant and phlebotomus fevers.

Typhoid, paratyphoid and paracolon infections each year cause a considerable number of cases, chiefly from contaminated water and vegetables, particularly at Bastia and the surrounding villages.

The greater part of the paper is devoted to the history, epidemiology, infection of animals, methods of conveyance, symptoms and prophylaxis of undulant fever, and contains nothing new. Attention is again drawn to the rapid spread of the disease over the island from the north, the east coast alone being exempt, and to the frequency with which the disease is contracted through cheese and by direct infection of the hands. For prevention the people require to be instructed in hygiene and the necessity of avoiding infected foods. The disease should be made notifiable, and well-equipped laboratories must be founded for carrying out sero- and lacto-reactions. All infected goats should be destroyed.

Phlebotomus fever is dealt with. This has been recorded by LEGER and SEQUINAUD in Corsica since 1912 and is now very widely distributed, occurring at times in a marked epidemic form during the summer and early autumn months, but it is noted that the variation in the incidence from year to year is very great, depending largely upon climatic conditions. After a careful examination of a large number of the flies, captured at Toga by MANSION, he concludes that the species found there is not *P. papatasii* but a new one, *P. legeri.*

P. W. B.-S.

SMITH (L. F.) & LOUGHNAN (W. F. M.). **Notes on Fevers in Aden.**—*Jl. R. Army Med. Corps* 1914. June. Vol. 22. No. 6. pp. 703–706.

Owing to the experience of the authors of fevers in India, the remarks made by them on the undifferentiated fevers of Aden are of considerable interest. These are divided into three types :—

(1) A continuous fever lasting 14–21 days or longer. This is the most common, is endemic, and occurs throughout the year, attacking both Orientals and Europeans. The onset is gradual; toxic symptoms are fairly marked; headache, backache and tremors, with slight gastro-intestinal symptoms and occasional bilious vomiting with constipation are seen; the later signs are those of secondary anaemia, jaundice and bronchitis. Convalescence is slow. Malarial parasites, spirochaetes, serum reactions for typhoid and for paratyphoid A and B were absent, and examination for undulant fever always gave negative results.

(2) A six to eight day type of fever, like that found in other parts of India, with either a regular fall of temperature or a chart of a saddle-back type. This is most common in Europeans and attacks new-comers. It prevails from May to October when mosquitoes are abundant.

(3) A low continued fever with few symptoms. This runs a long course with dyspeptic symptoms, anaemia, and slight emaciation.

It is noted that the sandfly fever of Aden is less severe than that of the North-West Provinces, and that the common form of fly found is the *P. minutus*, whereas in India the *P. papatasii* is practically the only one of importance. Enteric fever and its allies are infrequent, not being endemic. Malaria is absent, except for imported cases. There are no local anophelines, but *Culex fatigans* and *Stegomyia fasciata* are found all the year round in small numbers.

P. W. B.-S.

DAGORN. **Une Fièvre Indéterminée observée à l'Hôpital de Hanoï.** [Clinique d'Outre-Mer.]—*Ann. d'Hyg. et Méd. Colon.* 1914. Apr.–May–June. Vol. 17. No. 2. pp. 618–620.

The case referred to was that of a French soldier, aged 26, who was admitted to the hospital at Hanoi in June, 1911, for malarial fever and diarrhoea. The diagnosis of malaria could not be confirmed by blood examinations, neither had quinine any effect upon the temperature, the pyrexia lasting about a month. The serum reaction tests were negative, but ascarides were found to be present in large numbers, and the author considers the case to be one of a continued fever like those described by CROMBIE from India.

[It is not stated what serum tests were carried out; the paratyphoid infections are particularly important to eliminate.]

P. W. B.-S.

CASTELLANI (Aldo). i. **Note on Cases of Fever due to *Bacterium columbense* (Cast. 1905).**—*Centralbl. f. Bakt.* 1 Abt. Orig. 1914. June 13. Vol. 74. No. 3/4. pp. 197–200.

ii. **Note on a Case of Osteoperiostitis developing after a Probable Attack of "Febris Columbensis."**—*Jl. Trop. Med. & Hyg.* 1914. June 15. Vol. 17. No. 12. pp. 177–178.

i. In 1905 the author isolated from the stools of a case of fever in Ceylon an organism which he believed then to be specific and called it *Bacterium columbense*; later, from its action on sugars he considered it to be *B. paratyphosus* B. Recently the same organism has been again isolated from two other cases of fever, and he reverts to the original name. It has been obtained from the faeces in all three cases, from the urine in one, and from the blood in one. In each case it gave high agglutination reactions with homologous sera, the patient's serum not reacting with other known specific organisms. The actual classification of the bacterium is difficult owing to its inconstant action with lactose. When freshly isolated it does not ferment lactose, but after several sub-cultures it may give a slight amount of acid and gas. The same irregularity occurs with litmus milk, which is said to become

acid at first and alkaline after [like others of the Iosarcae group to which it appears to belong], but bleaching of the medium is of frequent occurrence ; occasionally the milk is rendered permanently acid, and after some weeks it may even clot [a series of contradictory reactions difficult to explain in a pure culture]. The cases clinically lasted from three to five weeks, and were like moderately severe typhoids. Constipation was present in two of the cases and diarrhoea in one. Relapses may occur.

[The differentiation of these intestinal organisms by their fermentative reactions alone is generally believed to be unreliable, the serological tests being more satisfactory.]

ii. In this paper the author describes the characteristics and reactions of the bacterium described above. In the case referred to the osteo-periostitis developed as a sequela of a fever which had lasted six weeks. The peculiar microorganism was isolated from the pus, and the blood gave agglutination reactions with the several strains of the *B. columbense* with which it was tested. The author therefore believes that this bacillus was causative of both the fever and the local condition.

P. W. B.-S.

STATHAM (J. C. B.). **Report on a Series of 833 Medical Pyrexias occurring in the Sierra Leone Garrison during the Period October 4, 1912, to October 4, 1913, with Remarks on the Bearing of these Diseases on the Health of the Troops.**—*Jl. R. Army Med. Corps.* 1914. July. Vol. 23. No. 1. pp. 42–50.

The very high proportion of fevers at Sierra Leone caused by malaria is shown in this paper, for out of 833 cases of pyrexia three-quarters were proved microscopically to be thus infected ; of the 623 cases, all but seven were caused by the sub-tertian parasite. The author is inclined to believe that the " race " of sub-tertian parasite as found on the West Coast differs from the ordinary one, as it shows the following peculiarities :—(1) Crescent forms are more rarely found ; (2) the great difficulty occasionally met with in finding parasites at all ; (3) greater amenability to quinine. West Africans also possess a considerable amount of immunity, tending to make the attacks shorter than in Indians or Europeans.* Seven cases of pyrexia were described as blackwater fever ; two of these were due to intense malarial infections and in two the haemoglobinuria was due to drugs (quinine and camphor).

Trypanosomiasis occurred twice in soldiers of the West Indian regiment. No definite cases of leishmaniasis were found either in man or animals. There were 70 cases of undiagnosed fevers, many of which were probably malarial, but the patients were not sufficiently examined. Neither dengue nor pappataci fever appears to have been present in

* The Sierra Leone garrison in 1912 consisted of British (303), African (1,432) and West Indian (520) troops.

an epidemic form, and Phlebotomus are not found in the district. Typhoid is very rare, though it probably exists among the natives to a certain extent. Ankylostomiasis also in some cases gives rise to pyrexial symptoms; this was noted 21 times. An examination of the West Indian Regiment showed 56 of the men to be affected; thymol treatment is stated not to have been successful. This disease is possibly of next importance to malaria in frequency and seriousness, and the preventive measures which are required to deal with these two infections are discussed fairly fully.

P. W. B.-S.

VERRUGA PERUANA.

RIBEYRO (R. E.), MACKEHENIE (D.) & ARCE (J.). i.—**Inoculabilidad de la Verruga Peruana á los Animales.** ii.—**Primeras Tentativas de Immunización en la Verruga Peruana.** [i.—Inoculability of Verruga Peruana into Animals. ii.—Preliminary Attempts at immunizing against Verruga Peruana.]—Trabajos presentados al V Congreso Médico Latino Americano, VI Pan-Americano, Lima, 9–16 di noviembre de 1913. 16 pp., with 5 plates. Lima: Imprenta y Fábrica de Fotograbados Sanmarti y Ca.

In these two papers, which were read at the 5th Latin-American Medical Congress at Lima in 1913, the authors give an account of their attempts, firstly, to inoculate verruga peruana into the lower animals and, secondly, to produce immunization against the disease. The animals employed were rabbits, guinea-pigs, dogs, asses, goats, sheep and monkeys, while the material used was obtained from hospital patients, being rubbed up with salt solution. Positive results were obtained when injections were made into the testicles of rabbits, and into the foreheads of monkeys, and with scarifications of the bellies or chests of dogs, sheep and goats. The period of incubation ranged from nine to sixteen days. The lesions produced, of which macroscopic photographs only are given, are described as consisting of a new growth, which did not ulcerate, composed of embryonal blood vessels surrounded by leucocytes. In no case did it generalise. Animals which had once been successfully inoculated in this manner did not re-act a second time, showing that some degree of immunization was produced.

To test the question further a second series of experiments was carried out on rabbits. It was found that the virus was destroyed when rubbed up with salt solution and heated to 56° C. for half an hour, or by simple admixture with glycerin, without heating, for 24 hours. Rabbits were immunized by successive doses of such sterilized material for varying periods, and then tested by inoculation with fresh material from the human subject, in every case with a negative result, showing, as the authors believe, that immunization had been obtained. The experiments on which this conclusion is based being somewhat numerous, reference should be made to the original paper for further details.

J. B. Nias.

HERCELLES (Oswaldo). **Enfermedad de Carrion.** [Carrion's Disease.] —*Cronica Medica, Lima.* 1914. Mar. 15. Vol. 31. No. 605. pp. 67–72.

The author regards STRONG's opinion, expressed at the 5th Latin-American Congress, as to the essential duality of the two stages of Carrion's disease, as ill-founded. He quotes several cases which have come under his own observation in which the stages of eruption and fever have alternated successively in a definite manner in the same individual; and at the post mortem examination of one of these patients, who died in the febrile stage, the characteristic eruptive tumours were found on the liver and spleen, although there were none on the surface of the body.

J. B. N.

Odriozola (Ernesto). **Unidad de la Enfermedad de Carrion.** [The Unity of Carrion's Disease.]—*Cronica Medica, Lima.* 1914. June 15. Vol. 31. No. 611. pp. 157–162.

A clinical lecture, in which the author supports the views expressed by Hercelles (see above) as to the identity of Carrion's disease and verruga peruana, as being alternating stages of the same complaint, in opposition to the suggestions of Strong as to their essential duality. The principal argument adduced by the lecturer in the present case is that he knows personally of cases where the patient has suffered from the febrile stage of Carrion's disease in Peru and has developed the eruptive or " verruga " stage later on in Europe, where there is no possibility of acquiring the disease, so far as is known.

J. B. N.

Townsend (C. H. T.). i.—**Human Case of Verruga directly traceable to** *Phlebotomus verrucarum* **(Dipt.).**—*Entomol. News, Philadelpia.* 1914. Jan. Vol. 25. No. 1. p. 40.

ii.—**Sequelae of Human Verruga Case Traceable to** *Phlebotomus verrucarum* **(Dipt.).**—*Ibid.* Mar. 14. pp. 131–132.

The author, accompanied by two assistants, visited in September, 1913, the Verrugas Canyon to investigate the cause of verruga and to obtain material for inoculation experiments. While there they used an ointment recommended by Prof. Newstead to protect them from the bites of the flies; nevertheless, one (N.) on the night of September 17th was bitten by the phlebotomus fifty-five times on the hands and wrists. The marks were recognised as being similar to those produced by this fly on the author on a previous visit. Culicidae were said to be absent at the time. Examination of N.'s blood on October 1st showed the verruga X-bodies, but there were no clinical symptoms. On October 25th there was a rise of temperature and the X-bodies were more abundant. The patient entered hospital, under the care of Dr. Barton, and on November 10th neosalvarsan (30 cc.) was given intravenously. A mild fever lasted for three weeks, terminating on November 15th. On December 24th the first sign of the verruga eruption was noticed and nodules continued to appear up to the date of writing (25th January). The patient had not been in the verruga zone at night since November 6th. The author considers that both the fever and the verruga eruption were due to the phlebotomus bites of September 17th.

[Of this there is no conclusive proof, for others known to have been bitten by these flies have not contracted the disease, and the statement that neosalvarsan is a specific against the disease is premature. A complete history of the case, to be published by Dr. Barton, will probably contain more definite details.]

P. W. B.-S.

TYPHUS.

MILNE (Dorothy K.). **Typhus: its Aetiology and Treatment.**—*Dublin Jl. of Med. Science.* 1914. May. 3rd Series. No. 509. pp. 327–331.

After describing the salient features of a typical case and also adding notes on one or two other cases which came under her care, Dr. Milne proceeds to give a brief summary of recent observations on typhus. In conclusion, it is stated that special treatment should be directed against the toxaemia and low blood pressure arising during the second week, and the author is of the opinion that the early transfusion of normal saline solution is the most satisfactory treatment, and even in two of her worst cases undoubtedly prolonged life.

E. Hindle.

PLOTZ (Harry). **The Etiology of Typhus Fever (and of Brill's Disease). Preliminary Communication.**—*Jl. Amer. Med. Assoc.* 1914. May 16. Vol. 62. No. 20. p. 1556.

L'Etiologie du Typhus. Note Préliminaire.—*Presse Med.* 1914. May 30. No. 43. p. 411.

Some time ago the author investigated six cases of "Brill's Disease" in New York and isolated an anaerobic micro-organism from the blood of five of them; in the single negative case the cultures were made after the crisis. Later, when this disease had been shown to be identical with typhus, the author examined six more cases in New York. In every case the same micro-organism was isolated, whilst a large number of controls gave negative results.

The isolated organism is described as a Gram-positive bacillus, of variable form, about 0·9μ to 1·93μ in length, the breadth being from one-third to three-fifths of the length. It is not acid resistant, nor provided with a capsule; by appropriate methods it is possible to demonstrate the existence of polar bodies. When first isolated the organism is anaerobic, but in successive cultures it can become aerobic. Cultivation on various sugar media (raffinose, maltose, arabinose, galactose, dextrose, saccharose and dextrine) resulted in the production of acid in the media containing maltose, galactose and dextrine respectively.

Fixation of the complement was obtained with the serum of six out of eight cases of typhus, employing as antigen the cultures of this micro-organism.

The reactions were negative during the evolution of the disease, but appeared during and after the crisis. Thirty-six controls gave negative results.

The intra-peritoneal inoculation into guinea-pigs of pure cultures of the organism produced a rise in temperature in the animals after 24 to 48 hours. The temperature continued high during four or five days and then suddenly fell. These phenomena are comparable with those observed after the injection of defibrinated blood from typhus patients; only the period of incubation is shorter in the former case.

The serum taken from typhus patients during convalescence was found to be bactericidal towards the organism, whilst normal serum was without any effect.

E. H.

Hort (E. C.) & Ingram (W. W.). **The Etiology of Typhus Fever (Preliminary Note).** [Memoranda.]—*Brit. Med. Jl.* 1914. July 4. pp. 15–16.

The authors briefly record the results of the examination of the blood and urine as well as of the cerebro-spinal fluid in 25 cases of typhus fever during a recent outbreak in Belfast.

A minute organism was discovered in all three liquids. It was found in all the urines, both from the human cases and also from five bonnet monkeys that had been infected by the injection of typhus blood taken from a patient before the crisis. It disappeared from the urine of these infected monkeys after the fever had subsided. The same organism was also found in the lysed deposit of fresh blood taken before the crisis, and also in the cerebro-spinal fluid.

The organism in question appears to be pleomorphic, being cocco-bacillary in form, and the authors refer to it as a cocco-bacillus. In fresh specimens it varies between 0·25μ and 0·6μ in its greatest diameter, and in its smaller forms passes through carefully tested Berkefeld filters. It is both Gram-positive and Gram-negative in the same preparations.

An exactly similar, but much larger, cocco-bacillus was also found in the fresh blood and urine of the same cases. This organism grows well on laboratory media, and is considered by the authors to be identical with those described by Dubieff and Bruhl, Wilson of Belfast, Fuerth, Müller, Marcus Rabinowitsch, Predtjetschensky and, finally, Plotz (see above). On injection of these organisms into monkeys the authors produced no fever or other pathogenic effects, and therefore they consider it as of only secondary importance.

E. H.

Ussher (C. D.). **An Epidemic of Typhus Fever in Van, Turkey.**—*Med. Record.* 1914. Sept. 19. Vol. 86. No. 12. [Whole No. 2289.] pp. 509–510.

During the past two years typhus has been making terrible ravages among the soldiers of the Van, Bitlis, and Erzeroum valleys. Many thousands have died and the disease has not been confined to the soldiers, although its spread amongst the general populace has been very limited and the mortality much less than among the former.

The author studied an epidemic that broke out among the soldiers in Van where, out of 4,500 soldiers, 19 officers and more than 2,500 men succumbed to the infection, the case mortality among the soldiers being over 75 per cent. Calcium sulphide was administered to some cases, 1–2 grain pills every half hour, but although at first favourable results were obtained, later experiences were unsatisfactory. Nevertheless, the author states that there has been a distinct benefit from its use. In some cases with very violent delirium an intravenous injection of 0·6 gm. neosalvarsan seemed to help materially.

According to the author the evidence in support of the view that lice only are responsible for the transmission is overwhelming, for not a single case of hospital infection occurred, although the nurses were continually exposed to every other form of contagion from the breath, desquamation, discharges, etc. One of the male nurses placed some infected body lice on himself, and became infected with typhus after an incubation period of about five days.

E. H.

Sergent (Edm.), Foley (H.) & Vialatte (C.). **Sur des Formes Microbiennes Abondantes dans le Corps de Poux infectés par le Typhus Exanthématique, et toujours Absentes dans les Poux Témoins, non Typhiques.**—*Compt. Rend. Soc. Biol.* 1914. June 19. Vol. 77. No. 21. pp. 101–103.

The authors have found coccobacillary forms in the organs of lice infected with typhus and not in the bodies of lice that had fed on normal persons or relapsing fever patients.

These coccobacilli in Giemsa stained preparations have always their two poles coloured more intensely than the median part. Their dimensions vary, as a rule, from 1·2μ to 2·5μ in length, but occasionally they may measure as short as 1μ or as long as 3μ. The diameter is usually about 0·5μ to 0·8μ. The small forms are often disposed in pairs.

These forms are much more abundant in the fluid contents of the gut than in the organs ; they may be found in all stages of the lice.

The resemblance of these louse forms to the various coccobacilli described from the blood and organs of typhus patients is then pointed out and, if not the actual disease agents, they must be regarded as organisms which accompany the true agent.

E. H.

Jablons (Benjamin). **Serological Investigations in Typhus exanthematicus.**—*Jl. of Med. Research.* 1914. May. Vol. 30. No. 2. (New Series Vol. 25.) Whole No. 144. pp. 131–139.

The author was bacteriologist to the Morava division of the Serbian Army, and during the Balkan War had the opportunity of examining a number of patients infected with typhus and making various complement fixation reactions.

The examination of the sera from 29 patients shows (1) that the sera of patients infected with typhus give the Wassermann complement deviation test as observed in syphilis, yaws, leprosy, relapsing fever, scarlet fever and malaria ; (2) this reaction need not be carried out with typhus organ extract ; since the components that give the Wassermann test in syphilis also give it in typhus, therefore the reaction is not specific for the latter disease.

The absence of a positive Widal agglutination test in the presence of an epidemic was found to be of value in diagnosing this infection.

Numerous attempts to cultivate bacteria from the blood of typhus patients gave negative results, and the presence of the Wassermann complement deviation test points to the fact that the cause of the disease is to be sought for amongst the class of protozoan organisms.

These results do not confirm Markl's statements concerning the value of complement fixation tests for the diagnosis of typhus.

E. H.

Job (E.) & Salvat (J.). **Typhus Exanthématique et Bacille Paratyphique B.**—*Bulls. et Mém. Soc. Méd. des Hôpit. de Paris.* 1914. June 18. 3 ser. 30 Ann. No. 21. pp. 1027–1029.

It is well known that the paratyphoid bacillus B may pass into the blood during various diseases, and the authors were able to find this same bacillus in the blood of two out of a hundred patients at Casablanca (Morocco) who suffered from attacks of typhus.

This organism is not considered to have any relation with typhus, and as infection with paratyphoid B is very widespread in Morocco, it is not surprising that it should occasionally be found as a saprophyte during the course of such a serious disease as typhus.

E. H.

YAWS.

Breitenstein (H.). **Ist die Framboesia tropica Syphilis?** [Is Yaws Syphilis?]—*Dermatol. Centralbl.* 1914. Mar. Vol. 17. No. 6. pp. 162–167. With 2 text figs.

The author, who has observed numerous cases of yaws in his long practice in the East Indies, gives an excellent review of the relation between yaws and syphilis. Amongst the differences between the two, it is stated that dogs, cats, and mules are naturally susceptible to yaws and the author records an outbreak amongst his fowls at Banda. The infected birds first showed a papilla on the upper margin of the orbit. This lesion soon involved the whole orbit, and the fowls generally died within one to two weeks. [The reason for regarding this infection as yaws seems very uncertain.]

The statement that yaws is never acquired through coitus is one which is open to question, although all observers agree that this is not the usual method of infection.

The author agrees with the generally accepted view that yaws is a disease *sui generis*, and proposes for it the name of "Syphilis of the Tropics."

[It is surely unnecessary to propose yet another name for yaws, as the appropriate term, Framboesia tropica, is now in general use.]

E. H.

Degorce (A.). **Sur une Variété de Pian proche de la Syphilis.**—*Bull. Soc. Med. Chirurg. de l'Indochine.* 1914. July. Vol. 5. No. 7. pp. 306–313. With 2 coloured plates.

In one or two districts in the neighbourhood of Hanoï it has been noticed that there are yaws centres in which the symptoms of the disease closely resemble those of syphilis, and in 1912 the author, in conjunction with Mouzels, described some of these cases (see this *Bulletin*, Vol. 1, p. 140). The present article is concerned with a further account of the infection, derived from the examination of numerous subsequent cases.

The Annamite variety of yaws resembles that of Ceylon, described by Castellani and Chalmers, and is very different from the African or American forms of the disease. The author considers the general features of yaws in the neighbourhood of Hanoï, and compares them with the principal manifestations of syphilis in the same districts.

The results are given in the form of a comparative table :—

Syphilis.	*Yaws.*
(1) Primary lesion infiltrated and indurated, with flat and smooth surface, ordinarily situated on the genital organs ; often accompanied by abundant lymphadenitis. Phagedaenic processes frequent.	(1) Primary lesion of soft consistency, or very little infiltrated, with granulating or pimply surface, situated almost invariably extra genitally, resembling the secondary lesions. Lymphadenitis not marked. No phagedaena.
(2) Roseola present.	(2) Roseola resembling that of syphilis, but rarer.
(3) Secondary cutaneous lesions papular from the first, dark red, infiltrated and fairly regularly scattered.	(3) Secondary cutaneous lesions at first in the form of conical elevations of a light red colour, not infiltrated at base, appearing in close groups. The lesions are similar to those of syphilis, namely, on the scalp in the form of encrusted papules ; on thin-skinned regions in the form of ulcerating papules, and in the case of the palm of the hands and plantar surface of the feet, in the form of simple papules.
(4) No abundant lesions of the framboesia type.	(4) Papillomata (or wart-like growths) of the framboesia type.
(5) Circinate lesions with pink edges, slightly raised, with fine scales.	(5) Circinate lesions with the edges more raised than in syphilis, covered with yellow crusts.
(6) Seborrhoeic syphilides on the face.	(6) On the face, lesions of the same type, but more striking and with irregular projections.
(7) Cutaneous lesions do not itch.	(7) Cutaneous lesions do itch.
(8) Perionychia present.	(8) Perionychia similar to that of syphilis, but occasionally giving rise to pimply lesions.
(9) In syphilis alopecia, rather the exception.	(9) Alopecia has not been described.
(10) Lesions in the buccal and pharyngeal mucosa are not numerous and are slight in degree. Erythema of the soft palate and pharynx occurs. Mucous patches. Ulcers of the lips and at the angles of the mouth.	(10) Lesions in the buccal and pharyngeal mucosa often absent. No erythema. No typical mucous patches. Sometimes fissures at the angle of the mouth. The typical lesions are raised, pure white, and occasionally covered with intact epithelium.
(11) In the glans, prepuce or vulva, the lesions are more or less typical mucous patches.	(11) Lesions with prominent edges or even pustular with yellowish crusts, occasionally also ulcerations resembling mucous patches.
(12) Moist condylomata at the margin of the anus.	(12) Similar condylomata, but larger and more raised.
(13) Secondary lymphadenitis present.	(13) Secondary lymphadenitis as in secondary syphilis.
(14) Tertiary lesions frequent, attacking chiefly the bones of the nose and palate, the limbs and sternum ; or multiple gummata in the muscles, connective tissue and the skin.	(14) Tertiary lesions quite exceptional. (One case recorded of a hypertrophic osteitis of the radius.)
(15) *Treponema* present in the lesions.	(15) *Treponema* present, similar to that of syphilis.
(16) Wassermann reaction positive.	(16) Wassermann reaction positive.

E. H.

Annales d'Hygiène et de Médecine Coloniales. 1914. Apr.–May–June. Vol. 17. No. 2. pp. 605–607. **Traitement du Pian à l'Hôpital Indigène de Ha-Dong. Extrait du Rapport Annuel de 1912.** [Clinique d'Outre-Mer.]

Thirty-three patients suffering from yaws—including 11 men, 11 women and 11 children—were treated at the Ha-Dong Hospital during 1912. The lesions could be cured by treatment with iodine, but the most satisfactory results were obtained when "606" was employed. Particulars are given of two cases which were treated successfully by intravenous injections of that medicament.

E. H.

Scherschmidt. **Verunstaltungen einer Hand infolge Späterscheinung von Frambösie.** [Deformity of the Hand as a late Symptom of Yaws.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. Jan. Vol. 18. No. 2. pp. 66–67.

In the province of Langenburg, German East Africa, yaws seems to be terribly prevalent, for the author found 1,759 cases in the first six months of his arrival there and 447 new cases occurred in the second half year. Many tertiary cases were observed, and among others that of a negro woman who presented rather unusual lesions. Her right forearm showed many scars from the elbow downwards; her wrist was swollen, immovable, and contracted at right angles to the forearm. In addition, the fingers were so deformed that the nails were the only recognisable features. This patient was injected with 1 c.c. of a 10 per cent. solution of mercuric salicylate and showed some improvement, but she died five days later, probably of an intercurrent infection. A similar case was also observed in a man, whose symptoms improved after a similar injection. In this district the native name for yaws is Mbenga.

E. H.

Collin (L.). **Le Pian ou "Tonga" aux Iles Loyalty.**—*Bull. Soc Path. Exot.* 1914. Mar. Vol. 7. No. 3. p. 180.

The endemic yaws previously observed in these islands seems to be assuming very grave proportions, especially in Lifou. The children are most liable to the disease, and in some villages more than half of them are covered with eruptions. Although yaws is generally considered a benign infection, yet, according to the author, it is one of the principal factors causing the large infantile mortality.

Lifou is gradually being depopulated as a result of the prevalence of yaws and other infections following it, and strict prophylactic measures are urgently needed in the island.

The author was on a vaccination tour (against variola) and notes that, in opposition to the views of certain authors (Neeb, Keelan), vaccination has no effect whatever on the course of the disease in yaws.

E. H.

DE FREITAS CRISSIUMA (E.). **Bouba.**—*Trans. xvii Intern. Congress of Med.* London. 1913. Sect. xxi. Trop. Med. & Hyg. Pt. 2. pp. 191–194.

The term "bouba" has been applied by the natives of Brazil to all ulcerous affections of the skin and mucous membranes, and the author calls attention to the necessity of restricting its application to yaws.

This disease was probably introduced from Africa during the slave trade, and since the abolition of this trade and the improvements in the conditions of labourers that followed, yaws has diminished considerably in its severity.

The author then proceeds to give a detailed account of the clinical symptoms of the disease in Brazil, and points out that it agrees in every respect with yaws as it occurs elsewhere. BREDA'S view that bouba was a distinct affection, called by him Brazilian bouba, is shown to be erroneous, for the patients examined in Italy by this observer presented other lesions not due to bouba, and these were supposed to be the result of the bouba.

E. H.

DA MATTA (Alfredo A.). **Boubas** (*Framboesia tropica.*)—*Revista Med. de S. Paulo.* 1913. Sept. 15. Vol. 16. No. 17. pp. 314–316.

The author commences with a historical account of yaws in Brazil and quotes the work of one of the early Catholic fathers, Ivo d'EVREUX who in 1613 described the presence of this disease in Brazil. In addition, there is a statement in André THEVET'S *France Antartique*, published in 1558, suggesting that the disease was known even in those days.

The author then gives an account of two cases from the Rio Yaco, both of which were badly infected with yaws. After a rectal injection of 0·45 gm. neosalvarsan, one patient showed improvement in his condition four days later resulting in cure on the eighteenth day, whilst the other improved on the sixth and was cured by the thirty-ninth day. Ten months later the patients were still healthy and showed no signs of the infection.

E. H.

CLARK (H. C.). **A Case of "Ringworm Yaws" in a Barbadian Negro.**—*Jl. Cutaneous Diseases including Syphilis.* Jan. 1914. Vol. 32. No. 1. [Whole No. 376.] pp. 18-20. With 1 plate.

The author remarks that there is considerable difficulty in differentiating syphilis and yaws when the latter is not seen in the full bloom of its secondary eruption. The Wassermann test was performed on nine yaws patients at Ancon Hospital, and five gave a positive and one a partial reaction, whilst four were negative; similar inconstant results have been obtained elsewhere, and therefore "one is left the clinical history, observation and demonstration of *Treponema*

pertenuis upon which to establish a diagnosis, and these are quite sufficient in most cases."

The author then proceeds to describe secondary circinate lesions which have been seen in a number of the yaws patients in the Canal Zone. Therefore the presence of these annular or circinate papular lesions, associated with a positive Wassermann test, cannot always be taken as an indication of syphilis in the negro of the tropics, for these conditions are not infrequently associated in cases of yaws.

Salvarsan was found to be very effective in the treatment of the disease, shortening the stay in hospital to about seven days.

E. H.

MONTSERRAT. **Report on the Prevalence of Yaws in Montserrat and of the Effects of Salvarsan thereon.** [MS. Reports by MCPHERSON (J. C.), Senior Medical Officer, and HEATH (W. G.), Medical Officer District No. 2. Dated Montserrat. 31st Oct. 1913.]

Dr. Macpherson states that yaws was more common a few years ago than it is at present. It is a disease associated with poor surroundings and bad feeding, and the improved conditions of life would account for a decrease in the number of cases. At present most of the cases observed are those in the chronic or ulcerative stage with a history of several years' duration. The incidence of yaws in Montserrat is estimated at about 5 per cent. of the total population and may be very mild—only showing as a "crab-pox" on the sole, or the granulating sores may be numerous and diffuse. It is in the treatment of the latter cases that salvarsan has given the most striking results. Ulcers which had resisted every form of treatment for years were healed in a few weeks after one or two injections. Particulars are then given of the history of 10 patients. In all 22 were treated with uniformly good results, in every case the ulcers and sores drying up within three or four weeks. Children of 10 to 12 years were given 0·3 gm. intramuscularly and other ages in proportion. No serious symptoms were produced in any of the cases.

Dr. W. G. Heath contributes a report on the treatment of 13 cases, eleven of which were "chronic ulcerations due to syphilis or yaws probably," by intramuscular injections of salvarsan. In all the patients the drug was followed by a rapid and certain recovery, and in no case were any alarming symptoms observed after the injection.

E. H.

GROTHUSEN. **Salvarsanbehandlung der Frambösie.** [Salvarsan Treatment of Yaws.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. Jan. Vol. 18. No. 2. p. 67.

The author is stationed at Kilwa, German East Africa, and has treated 16 cases of yaws in that district with salvarsan. Nine of the patients were injected intramuscularly and seven intravenously; the first five with neosalvarsan and the others with salvarsan.

In every case the action of the medicament was wonderful; the day after an injection, or at most two days later, the eruptions began to disappear and after four or five days the patients were cured, although

naturally large scabs took a longer time to heal. The action of the drug was equally well marked in all three stages of the disease.

A single injection of salvarsan does not always prevent relapses, for a child that was injected in November, 1912, suffered from a relapse in February, 1913, which however was cured by a second injection.

E. H.

Girling (E. C.). **The Treatment of Yaws and their Sequelae by Means of Salvarsan.**—*Jl. Trop. Med. & Hyg.* 1914. July 1. Vol. 17. No. 13. p. 193.

Working at Bolobo, Belgian Congo, the author has treated about fifty yaws patients at various stages of the disease, and in every case recovery has been rapid and complete. As a general rule 0·01 gm. of salvarsan per kilo body weight of the patient was administered intravenously, but 0·0075 gm. per kilo was also sufficient, and in small children the drug was injected into the muscles of the gluteal region. The patients experienced relief within 48 hours, and the eruption was dry within a week and disappeared by the end of fifteen days.

Two patients that had been unsuccessfully treated for years with injections of atoxyl and tartar emetic were cured after single injections of salvarsan.

[In giving the dose employed, owing probably to a printer's error, 0·075 gm. is written instead of 0·0075 gm. per kilo.]

E. H.

Harper (Philip). **Treatment of Yaws by Intravenous and Intramuscular Injections of Salvarsan and Neosalvarsan.**—*Lancet.* 1914. Aug. 8. pp. 370–372.

The author states that every Fijian native who does not die in infancy contracts yaws, usually at about the age of two years. The mortality from it is enormous, and its sequelae and complications are the chief causes of the excessively high death-rate among all ages of Fijians.

The author has treated 90 cases of yaws with injections of either salvarsan or neosalvarsan and obtained excellent results. The drug was administered by intravenous injection in 17 cases, and by intramuscular or subcutaneous injections in the remaining 73, and the dose varied from 0·1 gm. neosalvarsan in the case of a baby 10 months old, up to 0·6 gm. of salvarsan, or 0·9 gm. of neosalvarsan, for an adult male Fijian weighing well over 160 lb. One death was observed, probably due to an overdose of salvarsan; the patient, a woman, received 0·6 gm. intravenously. With the exception of this case, one treated by "blister serum," and another case which was much improved, though not completely cured, all the cases were apparently cured. The author is of the opinion that salvarsan is the preferable drug to use in hospital treatment, and neosalvarsan if patients have to be treated in their villages or at an out-patient dispensary.

E. H.

Le Roy des Barres. **Traitment du Pian par le Ludyl.**—*Bull. Soc. Med. Chirurg. Indochine.* 1914. May. Vol. 5. No. 5. pp. 186–194.

Ludyl, or 1151, was discovered and studied by Mouneyrat at the same time as galyl (1116) and has given good results in the treatment of syphilis, relapsing fever and trypanosomiasis. The author decided, therefore, to test its effect on cases of yaws, especially as he had previously obtained good results with galyl.*

The substance was dissolved in 15–20 cc. of distilled water and then filtered. As the solution is unaffected by light, enough for about ten injections was generally dissolved at the same time. For adults the author administered a first injection of 0·4 gm. of the substance and, after an interval of eight days, a second injection of 0·5 gm. As a rule the injection was administered intravenously and before meals. The reaction following an injection was much less intense than that after neosalvarsan or salvarsan; it was also rather less than the reaction provoked by an injection of galyl. Out of 25 intraveonus injections, a rise in temperature was observed in 14 cases. Other reactions observed were headache—which occurred as frequently as the fever; vertigo, 2 cases; and diarrhoea, 1 case. The urine was never affected.

In every case ludyl had a very marked effect on patients suffering from yaws. The second day after the first injection the papules began to fade away, and dry up, and by the time of the second injection, eight days later, in the majority of cases all the lesions had completely disappeared.

Particulars are then given of 14 natives of Indochina suffering from yaws who were treated with this compound. From the results there can be no doubt of its efficacy in this disease and, as the author remarks, it is to be preferred to galyl because its administration is followed by a slighter general reaction.

E. H.

Bayma (Theodoro). **A Emetina na Framboesia Tropica.**—*Rev. Med. de S. Paulo.* 1913. Sept. 15. Vol. 16. No. 17. pp. 311–314. With 5 figs. Also published separately—15 pp. With 4 figs. 1914. Sao Paulo: Typographia do Diario Official.

The author records a case of mixed infection with yaws and syphilis occurring in a soldier who had lived in San Paulo for three years. *Treponema pertenue* was found on examination of some of the ulcers and the Wassermann reaction was positive. Attempts to infect monkeys by the injection of material from ulcers containing numerous spirochaetes gave negative results.

Five injections of ·01 gm. of emetine were then administered subcutaneously and the yaws symptoms disappeared whilst at the same time the syphilitic ulcers healed up. The patient eventually left the hospital apparently cured of yaws, but was still infected with syphilis as his blood gave a positive Wassermann reaction. Photographs are given showing the appearance of the patient before and after treatment.

E. H.

* Sur l'Emploi de Galyl dans le Traitement du Pian.—*Paris Clinique et Therapeutique.* 1913. No. 29.

Ranken (H. S.). **A Preliminary Report on the Treatment of Human Trypanosomiasis and Yaws with Metallic Antimony (Plimmer).**— *Proc. Roy. Soc.* 1913. Mar. 6. Vol. B 86. No. B 586. pp. 203–215 and *Jl. R. Army Med. Corps.* 1913. Sept. Vol. 21. No. 3. pp. 261–281.

The author in the Sudan treated ten cases of yaws by intravenous administration of metallic antimony. He says that to an adult in fair condition 1½ grains should be given as a first dose and repeated twice with intervals of four days. Two grains may be given if the patient takes the drug well. Three doses, he considers, is a sufficient course of treatment, but in the majority of his cases a fourth was given to ensure a permanent result. The antimony is administered as in the case of trypanosomiasis (see this *Bulletin*, Vol. 1, p. 663). Notes are given of each case. The lesions were characteristic of the various stages of yaws, "from minute vesico-pustules up to confluent crusted lesions, rupoid patches with limpet-shell crusts, or late plantar ulcers." Spirochaetes were found in each case. The treatment was uniformly successful. There are no notes of the ultimate results, which, had he had the opportunity, the author would doubtless have recorded.

A. G. B.

SLEEPING SICKNESS.

Chalmers (Albert J.) & O'Farrell (W. R.) Sleeping Sickness in the Lado of the Anglo-Egyptian Sudan. *[illegible]* 1914. Sept. 15. Vol. 17. No. 18. pp. 273-284. With a map and 5 charts.

This paper is the first of a series of short notes which, it is hoped, will be published on sleeping sickness in the Anglo-Egyptian Sudan. By way of introduction, the author gives a short review of the various trypanosomes which have been described in man. The countries which adjoin the Lado Enclave, and are known to be infected with sleeping sickness, are the Belgian Congo and Uganda. The author gives an account of the history of human trypanosomiasis in these countries.

The Lado, of which there is a sketch map, is inhabited by numerous small tribes which had little communication with one another until the advent of the white man's rule. The sleeping sickness areas are outlined on the map, as is also the distribution of *Glossina palpalis* and *Glossina morsitans*.

Two monkeys and a dog inoculated from sleeping sickness patients were taken to Khartoum. On examination, only one monkey was found to be infected. This strain (the Yei strain) was examined in great detail. A biometric chart is given; the length of the trypanosome was found to vary from 18 to 36*u* and the breadth from 1 to 2·5*u*. The average length was 25*u*. Posterior nuclear forms have never been found. The pathogeneity of the trypanosomes was examined in dogs, cats, rabbits, gerbils, jerboas, white rats and monkeys, and was found to be distinctly less than that of *T. rhodesiense*, but more marked than that recorded for *T. nigeriense*. In the dog the average length of life was more than 40 days and often several months. In the monkey the average duration of the disease was 30·5 days, while in the gerbil it was 14·6 days.

Various serological tests were undertaken with a view to distinguishing this trypanosome from *T. rhodesiense*. The serum of a dog fully immune to the Yei strain destroyed that trypanosome in 20 minutes in vitro, but had no effect on *T. rhodesiense* after one hour. Partially immune serum was mixed with the Yei strain and injected into a gerbil. An infection resulted from which the animal was recovering when it died of heat stroke 39 days after inoculation. On the other hand the same serum mixed with *T. rhodesiense* resulted in an infection which killed the animal on the 7th day. A similar experiment with completely immune serum was not very satisfactory, as the animal inoculated with the Yei strain was accidentally killed 2½ days after inoculation; no trypanosomes were found in the blood or internal organs. The animal inoculated with *T. rhodesiense* died in ten days. Various cross immunity experiments were performed; these are to be described in a subsequent paper. As regards the effect of normal human serum, the author writes that the results of his experiments may be summarised briefly by saying that "no trypanolysis worthy of record took place with two strains of mule trypanosomes, with *T. rhodesiense* or with the trypanosome from Yei."

No experiments were made regarding transmission of the parasite; there is no reason to doubt that it is spread by *Glossina palpalis*. The authors compare the Yei strain with various other human trypanosomes which have been described, e.g. *T. rhodesiense*, *T. nigeriense*, *T. gambiense* (Congo strain), *T. gambiense* (Uganda strain). Their conclusions are :—

"We consider we have brought forward sufficient evidence to show that the trypanosomes which we found in the infected animal sent by Captain Ranken, R.A.M.C., and the Congo strain are the same, and that in all probability they and the Uganda strains are also the same. There being no data, that we know of, to compare these strains with *T. gambiense* Dutton, 1902, we are of the opinion that, at all events, provisionally it would be safer to keep the name '*Trypanosoma castellanii* Kruse, 1903,' for these strains until more light is thrown upon the complicated problem of 'What is *T. gambiense* Dutton, 1902?'

"It would appear to us as though the sleeping sickness of Africa could be divided into the following categories :—

"(A) *Southern sleeping sickness* caused by *T. rhodesiense* Stephens and Fantham, 1910, and spread by *Glossina morsitans* Westwood, 1850.

"(B) *Equatorial sleeping sickness* caused by *T. castellanii* Kruse, 1903, and spread by *G. palpalis* Robineau-Desvoidy, 1830.

"(C) *Northern sleeping sickness* which may be caused by as yet imperfectly known trypanosomes named :

"(a) *T. gambiense* Dutton, 1902,

"(b) *T. nigeriense* Scott-Macfie, 1913, and perhaps also by some as yet unknown trypanosomes."

W. Yorke.

Ingram (A.). **Report on Occurrence of Human Trypanosomiasis in the Northern Province of Ashanti.** Received in Colonial Office, 9th July 1914.

The author gives an account of the physical configuration and vegetation of the Northern Province of Ashanti. The total area is not more than 7,500 square miles. Dense forests are met with along the rivers and large streams; elsewhere the forest is of the savannah type. Large stretches of grass country are also found, chiefly in the Mo district, where trees are practically absent.

The distribution of the different tsetse flies varies with the type of vegetation. *G. palpalis* is found everywhere in forests of the denser type, *G. tachinoides* only in the thick growth along the large rivers. *G. longipalpis* is the fly most commonly taken in the savannah forest, and as this type of forest is most general, it is the fly which is most universally distributed. *G. submorsitans* is common in the Mo district. *G. pallicera* occurs only in the dense forests on the banks of streams, and never far from water. It is one of the rarer tsetse flies, but is a voracious blood sucker. *G. nigrofusca* seems to favour the outskirts of dense forests where it has given place to savannah forest. *G. medicorum* was met with in the savannah forest.

In view of the observations of Kinghorn and Yorke, that temperature plays an important part in the bionomics of tsetse flies and in the development of trypanosomes in them, the author describes briefly the main climatic conditions prevailing in Ashanti. Tables are given showing the maximum and minimum shade temperatures and relative humidity for each month during the years 1910–1913. In another table the monthly rainfall at Krachi for the year 1913 is given.

The population of the Northern Province amounted in 1911 to 39,962. The chief pursuits of the inhabitants are agriculture and weaving. A certain amount of cattle rearing is undertaken and small quantities of cacao and rubber are grown. This province is not a producer of rubber and kola nuts like the neighbouring Western Province; possibly, as the collection of rubber and kola nut farming entail work in the haunts of *G. palpalis*, this is one of the reasons why human trypanosomiasis is more marked in the Western than in the Northern Province.

Gland palpation and puncture was the principal method of examination adopted. Occasionally, when the glands were found to be too small to permit of puncture, examination of blood films was made. In all, 18,767 people were examined, and in 34 trypanosomes were found. This gives a percentage of 0·18 for the whole Province. A table is given showing the distribution of the cases in the various districts.

Concerning the sex and age of the persons infected, the author's observations, given in the following table, support those of Todd [see this *Bulletin*, Vol. 2, p. 255]. The majority of cases of trypanosomiasis are of middle age, hardly any of them being elderly persons, but only 4·3 of the examinees were in the "over 45" class.

Percentage of Cases Infected under each Age Limit.

	Under 15.	Over 15.	Over 45.
Males	5·8%	58·8%	2·9%
Females	2·9%	29·4%	·0%

The author discusses the question of glandular enlargement and its significance in trypanosomiasis. Of 35 persons showing "+" glands, 34 were punctured and 27 were found to be infected. Of 63 people showing "+−" glands, 57 were punctured and 5 were infected. Of 2,824 persons showing "+−−" glands, 22 were punctured and none showed trypanosomes.

With regard to the distribution of cases of human trypanosomiasis in the Province, the author points out that Kintampo and Krachi appear to be the two foci of the disease. Kintampo is the halting-place for traders travelling between Coomassie and the Northern Territories; it is also heavily infested with *G. palpalis* owing to the fact that it is enclosed upon three sides by permanent streams. A considerable amount of clearing has been done, but much bush still remains. Krachi is situated at the junction of the Beresu with the Volta, and is also much infested with tsetse. The number of people seen in the various towns and settlements, and the number of cases of human trypanosomiasis found are recorded in tables. The only part of the country which may be said to be free of tsetse fly is Banda and the surrounding neighbourhood within a radius of about four miles, Places at which various tsetse fly were taken and the dates are recorded.

In his conclusions, the author states that the Northern Province of Ashanti seems to be much less heavily infected with human trypano-

somiasis than the Western. The disease is endemic and has not spread with the same alarming rapidity that it has "on the East coast." Ingram is of opinion that the difference in the virulence of the disease on the two sides of the Continent is due to the difference in the conditions to which the vector is submitted. Kinghorn and Yorke have shown the effects of reduced temperature in retarding the develpment of *T. rhodesiense* in *G. morsitans*. It is not unlikely that some condition in the bionomics of *G. palpalis* in West Africa is inimicable to its being so efficient a transmitter of *T. gambiense* as it is "on the East coast." Again, judging from the ease with which pupae of *G. palpalis* have been collected on the shores and islands of Victoria Nyanza, *G. palpalis* must be much more numerous around that lake than it is in any colony of West Africa. Furthermore, he writes, big game, which acts as a reservoir, is more plentiful on the east side than on the west. The author states that he considers Wade's theory that the majority of persons found infected with trypanosomiasis are descendants of slaves imported from Northern Territories into Ashanti to be incorrect, because (1) this implies hereditary immunity against the disease amongst pure bred Ashantis; (2) on questioning the people in the Northern Province, one person out of every three will reluctantly admit being descended from a slave.

As women are the hewers of wood and drawers of water, the greater incidence of the disease in the male sex is puzzling.

W. Y.

Danysz (J.). **Traitement des Trypanosomiases par des Composés Arsenicaux combinés avec des Sels d'Argent et d'Antimoine (produits 88[2] et 102[1]).**—*Compt. Rend. Acad. Sci.* 1914. Aug. 24. Vol. 159. No. 8. pp. 452–455.

As a result of his studies (see this *Bulletin*, Vol. 3, pp. 37 & 531) on the compounds of arsenobenzol and metallic salts and on the therapeutic properties of these products, the author has succeeded in combining a certain quantity of trichloride of antimony with arsenobenzol bromo-argentique. The formula given for the product obtained is $[C^{12}H^{12}O^{2}N^{2}As^{2}]\ {}^{2}AgBrSbO\ (H^{2}SO^{4})^{2}$; it is referred to as 102^{1}.

A record is given of a series of experiments performed to ascertain the therapeutic effect of the compound on mice infected with trypanosomiasis. In Experiment I, six mice were inoculated with *T. evansi*. Five of them received, 48 hours later, a subcutaneous injection of the drug 102^{1}; the amounts given were respectively ·02, ·04, ·05, ·08 and ·1mgm. The sixth mouse served as a control and died five days after inoculation. In the first two mice the trypanosomes disappeared from the blood, but relapses occurred and the animals died on the 10th and 15th days. The third, fourth and fifth mice were cured. Experiment II was similar, except that the mice were infected with *T. gambiense*. In this case the control animal died on the 6th day, whilst the animal which received the smallest dose of the drug died on the 20th day. The other four mice were cured. Experiment III was similar to Experiment II, except that the animals

were treated on the 4th day after inoculation. The control animal died on the 6th day. Two mice which received ·02 mgm. of the drug died on the 12th day, whilst those which had received ·04 and ·06 mgm. died on the 20th day. The other two recovered.

The lethal dose of the drug for mice of 20 gm. is 5 mgm. The largest dose tolerated is 80 times the curative dose for *T. evansi* and 100 times that for *T. gambiense*. The author remarks that the addition of antimony to the product 88^2 gives rise to the product 102^1, which is specially active in the case of *T. gambiense* infection.

Danysz has been able to confirm these results on rabbits infected with *T. evansi*. He found that a dose of 1cgm. per kilo. of body weight readily cured rabbits infected with surra. The products 88^2 and 102^1 should be given exclusively intravenously, as injected subcutaneously they are absorbed with difficulty and produce severe lesions in the rabbit and guinea-pig.

W. Y.

PEARSON (Karl). **On the Probability that Two Independent Distributions of Frequency are really Samples of the Same Population, with Special Reference to Recent Work on the Identity of Trypanosome Strains.**—*Biometrika.* 1914. Apr. Vol. 10. No. 1. pp. 85–143. With 14 diagrams.

This paper is of a somewhat technical nature. Those interested should consult it in the original. The author divides his investigation into the following four parts :—

" (i) The probability of identity of the strains on the evidence presented in the reports of the Commission of the Royal Society, Nyasaland, 1912.

" (ii) The probability that the host or the animal in which the trypanosome is cultivated makes essential differences in the distributions of frequency.

" (iii) The probability that the strains are alike after allowance has been made for the host.

" (iv.) The nature of the heterogeneity which is statistically demonstrable in the bulk of trypanosome measurements."

The conclusions are :—

" (i) If appeal be made to statistical measurements, judgment between identity and diversity of strain must be formed by means of accepted statistical processes and not by mere comparison of graphs.

" (ii) Statistical processes show that the conclusions already formed as to the identity of trypanosome strains from mere inspection of the graphs cannot be confirmed.

" (iii) There must be some standardised process of treatment both in regard to host, and to method of and stage of infectivity at extraction.

" (iv) Even making allowance for differences due to host and treatment, we find remarkable divergences in the very strains asserted to be identical.

" (v) It would appear that some order would be brought into the chaos, if we could consider the strains described as *T. brucei*, *T. rhodesiense*, *T. gambiense*, the wild game, the Mzimba, and very probably the tsetse fly and the human strains as really consisting of two components, which for the time I have termed *T. minus* and *T. majus*. It is highly desirable that additional measurements should be made (? a nuclear index ascertained) to determine whether these lead also to similar components.

"I do not assume that this is a final solution of the problem, nor do I assert that *T. minus* and *T. majus* represent necessarily, although probably, distinct strains; they may be dimorphic forms of one and the same strain occurring in different proportions. But I believe that the suggestion of their existence may help to explain some anomalies of the present chaos. I ought also to state quite frankly that this paper is not written in a merely critical spirit. I believe that the trypanosome workers have undertaken in their elaborate systems of measurements most laborious and most valuable work, but, I think, the time has now come when without trained statistical aid but little further progress will be made in a very important and urgent matter."

W. Y.

Owen (George E.). **Mechanical Transmission in Trypanosomiasis.**—*Jl. Comparative Pathology & Therapeutics.* 1914. Sept. Vol. 27. Pt. 3. pp. 259–260.

The author states that between 1908 and 1913 some 2,500 to 3,000 head of cattle died from trypanosomiasis in the Barotse reserve of Northern Rhodesia, though it is free from *Glossina morsitans*. The mortality began each year in February and practically ceased after June. December to March are the months when flies are most numerous. Horses, dogs, sheep and goats are found in the district, but no case is known to have occurred amongst them; however, all these animals could be infected by inoculation. It was noticed that trypanosomiasis was definitely confined to certain herds, others grazing over the same ground being free. In 1912 the author was sent to investigate, and kept 800 head of cattle without loss through 1913. The animals were carefully watched for six months after the fly season, all those infected or suspected being removed before the flies again became numerous. During the heat of the day, when Tabanidae are numerous and most active, the cattle crowd together for mutual protection, and circumstances are very favourable for mechanical transmission. A transmission experiment conducted by the author, in which two healthy cows were kept with two infected ones and grazed together with them, resulted in infection of the healthy cows in four months. The author has come to the conclusion that mechanical transmission took place with Tabanidae as the agent owing to the very favourable circumstances of crowding. The species of trypanosome was not determined.

A. G. B.

Seidelin (Harald). **Ingestion of Erythrocytes by Trypanosomes.**—*Parasitology.* 1914. Oct. Vol. 7. No. 3. pp. 226–227. With 1 coloured plate.

While the author was working in the Medical Research Institute, Nigeria, with blood from white rats containing trypanosomes of the *T. brucei* group, he examined a number of stained films, and noted "the presence of some very interesting appearances which seem to suggest the important fact that these trypanosomes are capable of ingesting and digesting erythrocytes." A coloured plate shows twelve drawings taken from a specimen six days after intraperitoneal infection. "They show that the parasite encircles the erythrocyte, which gradually becomes enclosed in its protoplasm, probably in a

sort of vacuole which develops between the two nuclei." The author suggests that the vacuoles observed in certain trypanosomes may be of a similar nature. He states that these observations indicate a certain resemblance to the nutrition conditions obtaining in the case of amoebae and other protozoa.

A. G. B.

Jack (Rupert W.). **Tsetse Fly and Big Game in Southern Rhodesia.**—*Bull. Entomol. Research.* 1914. Sept. Vol. 5. Pt. 2. pp. 97–110. With 2 maps.

The author writes that in Southern Rhodesia the conditions are better than in most parts of Africa for gathering information about the distribution of tsetse flies in the past, and perhaps even in the present. This is because only one species of tsetse (*Glossina morsitans*) is found, and there is a relatively large European population, a more reliable source of information than the native. During the last four and a half years he has visited the great majority of fly-belts in Southern Rhodesia, and the results of his observations are to the effect that in most cases game is more or less abundant all the year round in fly-infested country and that in no instance is the larger animal life altogether absent even during part of the year. In a particular locality, where fly appeared to be abundant in the absence of game at a certain season, it was shown that warthog and duiker were present, and at other times of the year many other species of game. He sums up the evidence in favour of the necessity of big game to tsetse in Southern Rhodesia under four heads :—

"1. Tsetse retired before the advance of civilisation in the Transvaal, the only known modification of conditions being the destruction of the game.

"2. Tsetse disappeared from large tracts of country immediately after the rinderpest epizootic in 1896.

"3. Tsetse has increased and spread since the rinderpest only in those parts of Southern Rhodesia where big game has increased.

"4. Tsetse has greatly decreased of late years in the Hartley district, in those parts where the big game has been most effectively destroyed or driven away."

The author proceeds to discuss these four heads. He points out that the wholesale destruction and driving away of the larger fauna was for many years the sole modification of natural conditions due to the advent of the European ; clearing came later. A map shows the areas from which tsetse disappeared at the time of the rinderpest, the approximate range of tsetse between 1896 and 1900, and its range at the present day. In a foot-note Mr. Guy Marshall and Mr. Selous, who has examined this map, point out from personal knowledge that in some of the first-named areas, including the largest, there was no tsetse for some years before the rinderpest. For the rest of the arguments in this interesting paper the original must be consulted. A second map shows the increase in recent years of *G. morsitans* in the Sebungwe district.

A. G. B.

LEPROSY.

Barbézieux (G.). **Contribution à l'Etude de l'Histoire de la Lèpre. La Lèpre dans la plus haute Antiquité.**—*Janus.* 1914. Mar.–Apr. Vol. 19. No. 3–4. pp. 132–149.

According to the author, the almost universal opinion of the origin of leprosy is that, starting from Egypt, its first home, the disease was spread by the Israelites, Phoenicians, Assyrians and Persians, first throughout Asia, then throughout Europe, and then to America and Australia in the course of the various migrations of these peoples Dr. Barbezieux is not prepared to accept this view as final, and suggests that the disease may have had multiple foci of origin throughout the world, affecting all races at such times as their hygienic conditions were extremely degraded. In support of this alternative theory, he has examined the oldest records of many races and finds evidence that leprosy was almost universally recognised at the dawn of history. The biblical records, the Rig-Veda and Atharva-Veda, and the most ancient books dealing with China, all are found to contain referencess to the disease. As the author points out, it is difficult enough to recognise leprosy in certain cases even now, and how much more difficult must it have been in ancient times. But, allowing for this source of error, "some of the lesions described are definitely those of leprosy and can only be attributed to that disease." In conclusion, the author finds in historical records very little to support the hypothesis that the disease is extremely contagious and liable to be spread broadcast by the movements of infected peoples, while on the other hand he sees much to indicate that "leprosy is usually if not always contracted under identical environmental conditions of domicile, food, personal and general hygiene, *affecting subjects already predisposed.*

[The theory that leprosy is an extremely contagious disease is so rarely held that it is hardly worth attacking. On the other hand, all the evidence adduced by Barbezieux fits in very well with the generally accepted opinion that the disease is only contagious under conditions of such close and intimate contact as obtain where overcrowding, poverty, dirt and ignorance make them inevitable. Why he should seek a further explanation in "predisposition" it is difficult to imagine. There is much to be said in favour of his view that leprosy may have arisen independently in many communities. Until the bacillus of Hansen has been cultivated we shall remain in the dark as to the question whether all strains of human leprosy are identical. What little evidence we possess, chiefly based on the inconstant results of certain lines of treatment in different parts of the world, points rather to the existence of differences in human leprosy strains than to their identity, and such differences, if substantiated, might point to multiple foci of origin.]

S. L. Cummins.

Kéraval. **La Léproserie du Térek (Caucase) de 1898–1913.**—*Caducée.* 1914. May 16. Vol. 14. No. 10. pp. 131–133.

Keraval's paper is a resumé of a report by Dr. T. T. Hubert, the Director of the Leper Asylum at Terek (Caucasus). This Asylum was

founded in 1897, on the right bank of the River Kouma, close to the town of Georgievsk. It has since been enlarged and improved, has been taken over by the Government, and to-day has an efficient staff and accommodation for 60 cases, the upkeep for personnel and hospital services being met by a budget of 15,000 roubles (£1,190) per annum. To those charged with the administration of leper asylums the details of staff, diet, washing and disinfection given in the original article should prove of interest.

Since the opening of the institution 100 cases (58 men and 42 women) have been admitted. During this period of about 16 years, 44 patients have died, nine have quitted the Asylum, six have been cured, and there remain 41 cases (24 men and 17 women) still under treatment. There have been 53 cases of tubercular leprosy, 16 anaesthetic cases and 31 mixed infections. The duration of the disease was varied from 3 to 30 years. The average duration in the 44 fatal cases was 11 years. Eleven cases might possibly be claimed as hereditary, being sprung from infected families, but contagion would seem the more probable explanation even in these. In the remaining 89 there was no evidence of hereditary taint, and in all of them antecedent association with infected persons could be established. In the few cases where the date of exposure to infection could be approximately fixed the incubation period was from 3 to 4 years. The author notes that the onset of the disease is frequently marked by the occurrence of pustules with a more or less severe feverish reaction.

As regards the effect of the disease on the sexual functions, these appear to be retained for a considerable time in nodular, but to be lost early in anaesthetic, cases. It is only during the early stages of the disease that women remain fertile. Of two children born in the Asylum, both were apparently quite healthy. The most frequently noted complications are spasm of the glottis, loss of eyebrows and eye-lashes and affections of the globe of the eye.

In treatment, Chaulmoogra oil, persistently given internally and subcutaneously, has decidedly ameliorated both the local and general symptoms, often appearing to promise a cure, though, as a matter of fact, only one actual cure has resulted from the treatment. Fifteen to 60 drops are given emulsified with milk, the taste and smell being masked by peppermint water. The Anti-leprum of Bauer & Co., a purified oil of Gynocardia, though less disagreeable, is more expensive than, and not so active as, ordinary Chaulmoogra oil. Deycke's Nastin, prepared by Halle & Co., has given encouraging results, provoking a reaction of an intensity varying directly with the gravity of the leprous lesions. Of the six cases recorded as cured, five had been treated with Nastin. Under this treatment nodes have vanished, old ulcers have healed, beard, moustaches and eyebrows have again started to grow, and 66 per cent. of the cases have gained in weight. It is customary to commence with weekly injections of Nastin B_0, gradually working up to the stronger preparations, B_1 and B^2. The author regards leprosy as very definitely a curable disease.

S. L. C.

Stevens (James A.), the Elder (James A.), Lawson: Plea in Replication to the Defendant's Plea of the Statute of Limitations. In Preliminary Proceedings. 21 & 22 Mich. Reports, 1906, May Vol. 67, No. 2, Sept. Issue, Wash. Dec. 1906, pp. 27, 28.

In the matter of the petition of the above-named [illegible], Petitioner, for the appointment of the [illegible] of the estate of [illegible], deceased, late of the County of [illegible], State of [illegible], deceased. [illegible] [illegible] [illegible]

sign of the disease. She consented to gland puncture, with the following result. Films from the cervical, epitrochlear, and right and left inguinal glands were found to be free from organisms, but in a film from the pulp of one of the left inguinal glands draining the genital area, a few lepra bacilli were found. The woman is being kept under observation and the evolution of the infection will be watched. Nothing can be found out about the hereditary antecedents of the woman. It is noteworthy that her husband had suffered from a leprous sore on the genitals (*plaie à la verge*) for six months before his malady was diagnosed. The woman states that she never had a chancre or other genital lesion. Marchoux finds in this case a confirmation of his theory that in human as in rat leprosy the primary lesion is in the lymphatic glands.

S. L. C.

Verge (Arthur). **Notes on Three Unusual Cases. 1. Hunterian Chancre of the Tongue. 2 and 3. Leprosy.**—*Australasian Med. Gaz.* 1914. Mar. 28. Vol. 35. No. 13. [No. 480]. pp. 272–273.

In describing a case of nodular leprosy in a man of 27 years of age who had lived all his life in a district where no cases of leprosy were known to exist, had suffered from the undiagnosed disease for seven years and yet had not infected his wife or child (aged 3), Dr. Verge points out that to isolate such a case and yet ignore the large number of cases of open tuberculosis is irrational. The fact that popular feeling is against the segregation of tuberculosis cases and in favour of segregation in the much less contagious disease, leprosy, is one of the puzzles of psychology but, accepting the fact as such, the case quoted ought not to be taken as final evidence that no infection has or will occur. The incubation period of the disease is so prolonged in many cases that years may have to elapse before it is certain that the wife and child have escaped infection. The problem of how the patient got infected himself is a difficult one and raises the same questions as the cases quoted by Netter [see this *Bulletin*, Vol. 3, p. 491] of persons acquiring the disease in France without any known contact with a case of leprosy. No mention is made of bacteriological verification of the diagnosis. The possibility of clinically healthy "carriers" must always be borne in mind in this connection. The second case quoted was one of the macular type and presents no features of exceptional interest.

S. L. C.

Brault (J.). **Note sur la Provenance des Cas de Lèpre importés en Algérie.**—*Progrès Méd.* 1914. May 23. Vol. 42. No. 21. pp. 241–242. With 2 figs.

This is a clinical note describing two cases of leprosy seen in the Mustapha Hospital in Algiers. One was a case of the anaesthetic type, with marked atrophic changes involving the fingers and toes. Bacteriological examination of the nasal secretion proved negative. The other was a mixed case with numerous bacilli in the nasal secretion. Both cases had been in Madagascar, where certainly one and probably both became infected.

S. L. C.

LEBOEUF (A.). **Observations Relatives au Traitement de la Lèpre et notamment à l'Action très Favorable exercée par l'Huile de Chaulmoogra chez les Canaques de l'Archipel Calédonien.**—*Bull. Soc. Path. Exot.* 1914. June. Vol. 7. No. 6. pp. 535–548.

The danger of drawing conclusions, as to the success or failure of treatment, from observations confined to a limited number of patients in a disease so subject to spontaneous improvement as leprosy is set forth on his first page by the author. He believes himself to have dealt with a sufficient number of cases to justify an opinion, and the opinion formed is favourable to Chaulmoogra oil, both by itself and in combination with other drugs. The large doses often mentioned as necessary are in reality not required. Leboeuf prefers to use smaller doses, continued for as long as possible, periodical intermission in the treatment being allowed. The oil can be given in one of three forms: in emulsion, as capsules, in salads, etc. Notes on one of many successful cases (exact number not stated) are published in full. This case, an adult Kanaka from one of the islands of the Loyalty Group, suffering from what appears to have been a mixed type of the disease, was completely freed from symptoms by treatment with a spoonful of emulsion of Chaulmoogra oil, once daily, continued from February to October, 1912. He was seen again in 1913 and was still apparently in excellent health.

A serious drawback to the use of Chaulmoogra oil is that samples vary greatly in their efficiency. This is noticed by the patients themselves, who will sometimes complain that a given sample is inferior to one formerly prescribed for them. The author considers the contradictory reports on the value of Chaulmoogra oil as probably depending, on the one hand, on adulteration of the sample and, on the other, on the race to which the patient belongs. The drug can be used in the form of inunctions concurrently with its exhibition by the mouth. For this purpose it may either be mixed with vaseline or made into a pomade by adding two parts of the oil to one part of black soap. The latter preparation may lead in certain cases to intense desquamation, in which case the pure oil or the vaseline must be substituted. The method of intra-muscular injections may be employed where the exhibition of the drug *per os* is not well tolerated, but such injections are absorbed with difficulty and, especially where a large number of patients have to be treated, the administration of the drug by the mouth is to be preferred.

The author has had decidedly encouraging results with potassium iodide. The effect of this drug is very different in individual cases. Leboeuf divides lepers into three classes according to their behaviour under this treatment.

(1) Those who fail to react to even large doses. This class is made up of mild, early and atypical cases.

(2) Those who display or fail to display a febrile reaction according to the dose administered.

(3) Those who react even to the smallest doses (1 or 2 centigrams a day). These cases are usually far advanced and of the tubercular type.

Records of cases are given which show a curious and sustained rise of temperature, persisting as long as the drug is continued and ceasing

on its being suspended. A daily dose of one gram is what is generally given. Inunctions of Chaulmoogra oil may be combined with it. Some very favourable results have been obtained by this method.

Capsules of iodised Chaulmoogra have been tried but were found to lead to violent reactions, owing to containing too large a proportion (20 per cent.) of iodine.

Turning to the use of injections of iodoform, Leboeuf uses a 10 per cent. suspension in olive oil, the iodoform being added to heated oil and then treated by cooling and by beating up with a glass rod. The result is a milky suspension which passes easily through the needle of a syringe. Individuals vary in their reactions, so that the dose must be suited to the case. An injection of about 1 cc. is often used. Abcesses never result. This treatment should only be used as an adjunct to treatment by Chaulmoogra oil. A 2 per cent. solution of carbolic acid in water also makes a good adjunct to Chaulmoogra oil treatment, 0·5 cc. to 6 cc. being injected twice weekly.

The direct application of carbonic acid snow may also be found useful, generally as an addition to treatment by Chaulmoogra oil, occasionally alone in early and localised cases. Great stress is laid on the importance of rest, good hygienic conditions, and good food, leprosy resembling tuberculosis in its amenability to these conditions in early stages.

S. L. C.

Pautrier, Descaux & Rabreau. **Du Danger d'Infidélité possible des Injections d'Huile de Chaulmoogra dans le Traitement de la Lèpre.** —*Bull. Soc. Française de Dermatol. et Syph.* 1914. May. Vol. 25. No. 5. pp. 283–285.

This is an important observation on a case of leprosy treated in Paris by intramuscular injections of a mixture of Chaulmoogra oil, oil of eucalyptol and oil of sweet almonds. A series of injections was made into the gluteal muscles over a period extending from November 23rd to February 18th, 24 injections (12 into each side, representing a total volume of 60 cc. of oil) being administered. On March 1st, on attempting to give a further injection, it was noticed that oil exuded along the needle, and on making negative pressure, no less than 50 cc. of oil was recovered, showing that the medicament had become encysted and was not being absorbed at all. This may explain why the case had shown no improvement during the period of treatment. The authors recall the frequency with which salivation has occurred long after a series of intramuscular injections of "Gray Oil" in syphilis, especially where a blow or other impact has occurred capable of rupturing an encysted collection of mercurial oil, and consider that the possibility of such a shutting off of the drug from the circulation must be always borne in mind where oily preparations are used in the form of intramuscular injections.

S. L. C.

NETTER. **Du Rapport de M. Netter, relatif aux Mesures Spéciales de Prophylaxie qu'il conviendrait de prendre dans la France Continentale à l'Egard de la Lèpre.** [Discussion].—*Bull. Acad. Méd. Paris.* 1914. Séance du 28 Avril. 3e ser. Vol. 71. [78e année].—No. 17. pp. 611–628.

At the meeting of the Academy of Medicine of April 28th, 1914, the discussion on M. Netter's Report on the Prophylaxis of Leprosy in France [see this *Bulletin*, Vol. 3, p. 491] was resumed. M. GAUCHER stated that he considered the measures suggested by the Committee as better than nothing but, at the same time, insufficient. He proposed amendments to the effect that (1) lepers infected within the territory of continental France should be looked after in their own homes or sent to hospitals, strict quarantine being unnecessary owing to the low infectivity which M. Gaucher sees reason to attribute to cases of local origin; (2) that French subjects, arriving from abroad with leprosy contracted in foreign countries, should be isolated on an island off the coast of France; and (3) that French territory should be absolutely forbidden to all lepers of foreign extraction. In reply, M. Netter pointed out that it would be unscientific to differentiate between cases of the disease contracted in foreign countries and in endemic areas at home, M. Gaucher having himself cited a case of infection arising from a leper of local origin, and brought forward various arguments in favour of the original report of the Committee. After an interesting discussion, the various conclusions of the Committee were put to the meeting and carried unaltered, save for a change in the wording of the first recommendation introduced at the suggestion of M. LAVERAN. The proposals, in their final shape, are as follows :—

(1) Leprosy shall be included amongst the diseases subject to compulsory notification.

(2) Lepers shall be subjected either to special observation or isolation according to the necessities of the individual case.

(3) French territory may be forbidden to lepers of foreign origin.

(4) A special Committee shall investigate each case and decide on the measures to be taken.

(5) In forwarding recommendations on the prophylaxis of leprosy in France, the Academy cannot refrain from earnestly calling the attention of the executive to the need of vigorous measures to limit the spread of the disease in certain of the colonies and protectorates which are much more directly threatened by it than the home territory.

S. L. C.

IRVINE (H. G.) & LARSON (W. P.). **A Case of Leprosy with Attempted Cultures and Animal Inoculations.**—*Interstate Med. Jl.* 1914. June. Vol. 21. No. 6. pp. 678–681. With 2 figs.

In a case particularly suitable for culture experiments, since it was one of nodular leprosy at a stage before ulceration had commenced and in which the lesions were rich in acid-fast bacilli, the authors made a thorough attempt to grow the bacillus of Hansen, with negative results.

After thorough disinfection of the skin over a nodule by cleaning with alcohol and ether and painting with tincture of iodine, wedge-shaped portions of tissue were excised and used for insemination on Dorset's egg medium and on coagulated horse serum, a small quantity of sterile trypsin solution (Fairchild) being added to each capsule

of the latter. Nutrient agar was also tried. Subcultures showed a progressive diminution of the acid-fast bacilli, so that it was evident that these were merely transferred to the fresh culture tubes, the number diminishing with each transfer. Small pieces of tissue were placed in the anterior chamber in 8 rabbits, and emulsion of tissue was injected into the testicles of 4 more. Two animals showed secondary infection with contaminating bacteria. All the rest of the rabbits remained normal up to nine months, the total period of observation.

S. L. S.

KEDROWSKI (W.). **Zur Histologie der Lepra.**—*Arch. f. Dermatol. u. Syph.* Orig. 1914. May. Vol. 120. No. 1. pp. 267–284. With 1 plate.

In February, 1899, a female patient, born in South Russia (in the District of Don Cossacks), aged 38, married, and the mother of four healthy children and of two that had died in infancy, consulted Dr. A. GUTSCHENKOFF of Moscow, suffering from areas of anaesthesia scattered over the skin surface. Full clinical notes of the case by Dr. G. METSCHERSKY, of the Moscow University Dermatological Clinic, are quoted by the author, and should be studied in the original. It will suffice to say that the patient had first felt ill in 1895, only one spot being visible at that time, and that she had not consulted a doctor until 1898, when the spots suddenly appeared in a variety of places and caused her to become uneasy as to their nature. The spots were of three types—(1) wheel-shaped erythematous plaques, (2) ring-shaped pigmented plaques with a centre free from pigment, and (3) ring-shaped and pigmented plaques with a colourless centre. No nerves could be felt as enlarged. In the neighbourhood of the erythematous pigmented plaques, sensibility to pain was increased, while other sensations were normal. In the colourless central parts of the plaques of the third category, sensation of touch was dulled, the power of localisation was impaired, and the sensation of pain was markedly diminished. Leprosy is fairly common in the Don District where the patient had lived since her marriage. The patient had often heard of it but had never seen a case. Her children and husband were healthy. There was no evidence pointing to tuberculosis in her case. The nasal mucous membrane appeared healthy. For microscopical examination a small piece of skin from a plaque of the third category was removed, including portions of healthy skin, the whole edge and part of the pale central area. The examination of sections showed the following characters :—

The tissues of the true skin were infiltrated with a large number of little nodes, the smaller of which consisted almost entirely of small round mononuclear cells of a lymphoid type, staining blue with haemotoxylin eosin. The larger nodes showed similar cells at the periphery but the centre was composed of larger cells with round or oval vesicular nuclei, the cytoplasm staining not blue but pink (epithelioid cells). These sharply demarcated nodes at first sight recalled miliary tubercles, a resemblance heightened by the presence of giant cells scattered here and there in the central areas. Some of these nodes were to be seen in the subcutaneous areolar tissue as well as in the skin, and were commonly associated with hair follicles, sweat-glands, vessels and nerves. Only the papillary layer of the skin was for the most part free from them. In the oldest part of the

lesion—the part of the section corresponding to the centre of the plaque—the infiltration at times reached the Malphigian layer, penetrating as far as the cylindrical-celled area of the latter, so that here the narrow band of skin which usually separates the infiltration from the epidermis in leprous lesions was completely absent. Up to this point, the characters of the nodes were almost uniform, and only in the more superficial layers of the skin were the cells of a less consistent type, elongated forms appearing and the nodes tending to lose their sharp contours and to shade off into the surrounding tissues. Here, giant-cells indistinguishable from those regarded as characteristic of tubercle, were fairly numerous. On staining by Ziel-Neelson's method, a few acid-fast rods were to be found after prolonged search, lying free or sometimes in epithelioid cells, staining poorly and having a granular appearance. Neither bundles nor aggregations of bacilli were to be seen. The bacilli could not be stained by Baumgarten's method. Inoculation of small portions into guinea pigs led to only negative results.

While the clinical picture was that of a maculo-anaesthetic case of leprosy, the following points were in favour of tubercle :—

(1) The infiltration of the skin by miliary nodes.

(2) The presence of giant-cells.

(3) The small number of isolated bacilli present.

(4) The absence of a fine continuous layer of cuticular tissue separating the epidermis from the underlying infiltration, a point of decided importance since this layer is usually to be found present in leprous lesions.

Against the tubercle theory, one histological feature, to which SCHAFFER has attached diagnostic importance, was noted: the fact that the epithelioid cells in the centre of the nodes were in many cases vacuolated, the vacuoles filling the whole cell protoplasm and pressing the nucleus to the periphery so that the latter assumed a half-moon shape. Taking all these points into consideration, Dr. METSCHERSKY was obliged to make the provisional diagnosis of " perhaps leprosy " and to let the patient return home. Seven years later (in March, 1906), the patient returned to Moscow and consulted Professor A. POSPELOFF, through whose kindness the author was able to obtain histological material. The clinical condition was now much more advanced, the skin of the trunk and extremities being covered with an enormous number of plaques of various shapes, sizes and colour, many being raised above the surrounding surface. The type of plaque showing a central depression was no longer to be seen. The nasal mucous membrane still appeared normal. On microscopical examination of a portion of skin from a raised plaque, the appearances were quite different from formerly. The tuberculoid nodes were absent. Giant cells could not be found. Instead of a granuloma with the vascularity and other characters of a new growth, there was now to be seen a collection of cells of varying size and shape between which were visible both fine and coarse processes of connective tissue. Vacuolated cells were present. The whole infiltrated area had taken on a definitely sclerotic character. Ziel-Neelsen's staining now showed the presence of numerous acid-fast bacilli, some free, others in the interior of cells and frequently gathered together into little heaps. On the whole, the picture had now taken on a character typical of leprosy.

It is therefore clear that the patient was, as her clinical condition indicated, a leper on the occasion of her earlier visit to the Moscow

Clinic, although the histological characters at that time were on the whole indicative of tubercular infection rather than of leprosy. The author rightly regards the case as one of great interest and importance as illustrating the fact that Hansen's bacillus can give rise to lesions similar to those produced by the tubercle bacillus. As he says, "It is high time that we reconsidered our old views on the histology of leprosy and formed a truer estimate of the observed facts."

The paper closes with a summary of the previously recorded cases of tuberculoid lesions produced by lepra bacilli and with an interesting discussion of the question (raised by LIE) whether such appearances could be due to a symbiosis of leprosy and tubercle bacilli in the same lesion. The author advances arguments in favour of his opinion that this explanation is inadequate and that it is, on the whole, much more probable that Hansen's bacillus, resembling the bacillus of Koch in so many ways, can, under certain circumstances, give rise to lesions histologically similar to those produced by the latter. S. L. C.

PHILIBERT (André). **Lèpre humaine et Lèpre murine.** [**Le mouvement médical.**]—*Progrès Médical.* 1914. May 2. Vol. 42. No. 18. pp. 210–212.

Philibert calls attention to the very close analogy between human and rat leprosy, quoting from the work of MARCHOUX [see this *Bulletin*, Vol. 3, p. 505] at some length in support of his opinion. The similarity in the geographical distribution of the two diseases in Europe, their many clinical features in common, the histo-pathological and bacteriological affinities, as well as certain comparable epidemiological characters, all point to the closest relationship, if not to the identity, of Hansen's bacillus with the bacillus of Stefansky. After a review of the attempts to cultivate the bacillus of leprosy [in which no mention is made of the work of KEDROWSKY or BAYON], Philibert concludes that the organism has not yet been cultivated, thus presenting still another feature in common with rat leprosy. He mentions the facility with which the latter can be transmitted from rat to rat and calls attention to the recent claim of NICOLLE and MARCHOUX to have caused benign and transitory leprous lesions in monkeys by the inoculation of human leprous material. He recalls the fact that SUGAI obtained what he believed to be an infection of 18 out of 24 Japanese dancing mice with human leprosy bacilli, and he attaches much importance to this susceptibility of a rodent known to be subject to a disease comparable to leprosy. It is suggested that the mouse is likely to prove suitable for inoculation with leprosy of human origin since it can be infected artificially with the bacillus of Stefansky and yet does not suffer naturally from the latter organism, being thus free from the sources of fallacy to which the sewer rat is liable. Even if it should be ultimately proved that human and rat leprosy are identical, Philibert believes that there could be no possible danger to humans from rats, as the rat strain must have by now adapted itself for survival in the tissues of the rodent and lost its power of infecting human beings. [The paper is interesting and suggestive. For many reasons, recent attempts to solve the question of human leprosy by direct method have been disappointing, and this fact gives all the more importance to the study of allied diseases in animals.]

S. L. C.

HELMINTHIASIS.

JUDKINS (O. H.). **Some Observations on Intestinal Parasites in Texas, based upon Microscopic Findings in Fifteen Thousand Cases.**—*Texas State Jl. of Med.* 1914. July. Vol. 10. No. 3. pp. 126–128.

Fifteen thousand cases were examined in the section of Texas between the Colorado and Sabine Rivers and as far north as Smith County, in connection with the work of the Rockefeller Sanitary Commission. The protozoal and other findings save of helminths are ignored in the present abstract. The helminthic results are tabulated :—

No. of cases, 15,000.

Necator americanus	3,844
Hymenolepis nana	71
Taenia saginata	67
Taenia cucumerina [*Dipylidium caninum*] ..	2
Oxyuris vermicularis	561
Ascaris lumbricoides	42
Strongyloides stercoralis	4
Tricocephalus dispar	28

The *Taenia saginata* occurred mostly amongst people of German or Bohemian descent. *Hymenolepis nana* is the commonest tapeworm observed in Texas ; the 71 cases are fairly well distributed over the country. Although only 42 cases appear in the table, it is stated in the text that the *Ascaris lumbricoides* is a very common parasite in Texas.

The total number of faecal examinations of all ages, sexes, colours and occupations made in thirty [tabulated] Texas counties up to April 1st, 1914, was 52,745. Of these 15,222 were infected with *Necator americanus*. The total number of children, from age 6 to 18 years, examined was 24,782, showing 39 per cent. infected with *Necator americanus*.

R. T. Leiper.

WILLETS (David G.). **Intestinal Helminthiasis in the Philippine Islands as Indicated by Examinations of Prisoners upon Admission to Bilibid Prison, Manila, P. I.**—*Philippine Jl. of Science.* Sect. B. Trop. Med. 1914. June. Vol. 9. No. 3. pp. 233–240.

This paper gives the results of the examination of 7,843 adult males admitted to Bilibid Prison from all parts of the Philippines, and should be read in conjunction with those published by GARRISON in 1911. It is notable that the percentage of cases of hookworm in Willets's tables is 22·2 per cent., while that obtained by GARRISON was 52 per cent.

R. T. L.

China Medical Journal.—1914. July Vol. 28. No. 4. pp. 277–280. **Extracts from Report of E. de M. Stryker, M.D., for 1913. Suan Mine Hospital, Korea.**

Results of microscopical examinations are tabulated :—

Parasite.	95 In patients.		111 Out patients.	
	Cases.	Per cent.	Cases.	Per cent.
Ascaris lumbricoides ..	82	86·1	93	84
Tricocephalus trichuris ..	75	79	77	69
Ankylostoma duodenale ..	52	54·7	68	61
Oxyuris vermicularis ..	2	—	—	—
Strongyloides intestinalis ..	2	—	—	—
Ascaris canis (?)	1	—	—	—
Paragonimus westermanni	9	—	—	—
Opisthorchis [*Clonorchis*] *sinensis*	2	—	—	—
Cotylogonimus heterophyes (?)	2	—	1	—
Taenia saginata	11	—	5	—

The ova of Paragonimus were found in the faeces of nine cases.

R. T. L.

Cadbury (W. W.). **Results of Examinations of Faeces made at the Hospital of the University Medical School, Canton, 1913.** [Research Reports].—*China Med. Jl.* 1914. July. Vol. 28. No. 4. pp. 271–274.

In view of the great prevalence of ankylostomiasis amongst the Chinese in the province of Kwangtung in South China, an examination of the faeces of students of the better class was undertaken in view especially of the stringent regulations governing the admission of Chinese into the United States.

In 76 students from Canton between the age of 11 and 25, 49 (i.e. 64 per cent.) gave a positive finding of ova of intestinal worms, viz. :—

Ascaris	36 cases.
Tricocephalus	18 cases.
Clonorchis	7 cases.
Ascaris and Tricocephalus	12 cases.
Clonorchis and Tricocephalus	1 case.

No case of Ankylostome was found, although some who were suspected of being infected were examined more than once.

R. T. L.

Chastang. **Comptes Rendus de Parasitologie : 1. *Schistosomum japonicum* et Fièvre du Yang-tse. 2. Sur l'Etiologie de la Distomatose Hépatique.**—*Arch. de Méd. et Pharm. Navales.* 1914. May. Vol. 101. No. 5. pp. 321–325.

1. Brief summary of preceding writings by Lambert, Dantec, Edgar and Hutcheson on the connection between Yangtse fever nd Schistosoma infection [*see* this *Bulletin*, Vol. 4, p. 99.]

2. Summarises briefly Houghton's paper in the *China Medical Journal*, May, 1913, in which the conclusion is reached that a small fish of the genus Notropis is the intermediate host of *Clonorchis sinensis*.

R. T. L.

Bovaird (David) & Cecil (Russell L.). **Schistosomiasis japonica: A Clinical and Pathological Study of Two Cases.**—*Amer. Jl. Med. Sci.* 1914. Aug. Vol. 148. No. 2. [No. 509]. pp. 187–206. With 3 figs.

This paper consists essentially of careful clinical and pathological notes of two cases of Schistosoma infection contracted in Japan, which came under the author's observation in New York. There are further paragraphs apparently compiled from other sources dealing with the History of the Disease and the Geographical Distribution, Morphology and Pathogenesis, Symptomatology, Diagnosis, Prognosis and Treatment, the whole forming a useful and accurate resumé of our knowledge of this disease at the present time.

R. T. L.

Thompson (G. S.). **Ionisation for Bilharziasis.** [Correspondence.] —*Lancet.* 1914. Oct. 17. pp. 966–967. **Ionization for Bilharziosis.** [Memoranda.]—*Brit. Med. Jl.* 1914. Oct. 31. p. 756.

It is suggested that in view of the penetrative effects of ionization in ringworm, similar treatment in bladder infection with Bilharzia might ameliorate the condition by destroying the living worms in the tissues. [This idea for the treatment of Bilharzia should have been given a trial before publication.]

R. T. L.

Yoshida (S. O.). **On a Second and Third Case of Infection with *Plerocercoides prolifer* Ijima found in Japan.**—*Parasitology.** 1914. Oct. Vol. 7. No. 3. pp. 219–225. With 1 plate.

At the autopsy of a monk aged 36 who, after an illness lasting six years, died in the Imperial University Hospital of Tokio, an enormous number of cestode larvae were found in the subcutaneous fat, muscles, wall of the alimentary canal, mesentery, kidney, lung and heart. A few were found also in the ventricle of the brain. No worms occurred in the spinal cord, the orbit or the cavities of the heart. So abundant were the worms in the tissues that no portion could be cut without damaging the parasites. Most were encapsuled, but some were free in the tissues. The capsules were usually ovoid in shape, measuring 3 to 6 mm. in length and breadth, but attaining a measurement even of 16 × 5 mm. The specimens removed from the capsules showed slow movement and extension in warm saline solution; the largest measured 75 × 2 mm. Buds may form on any part of the body and on small as well as large individuals. The sucker-like groove at the anterior end is only a temporary invagination. In structure the parasites tally with the description given by Ijima. Before death the patient was weak and anaemic. The presence of the worms under the skin was indicated by vermicular or knoblike swellings, more

*Readers should not confuse "*Parasitology*" the well known journal published by the Cambridge Press with the "*Journal of Parasitology*" (edited by Professor Henry B. Ward and newly published in America). It is regrettable that the title of the new Journal does not indicate its American origin. R.T.L.

frequent upon the breast and abdomen than on the face, trunk and extremities. The number of swellings appeared to vary periodically.

In the second case noted by the author the parasites were all small with few branches or buds. The swellings caused by the worms had been observed by the patient for thirteen years. In a large swelling of the thigh, from which pus was evacuated, a number of cestode larvae were present. This patient is still alive.

R. T. L.

Hall (Maurice C.). **Experimental Ingestion by Man of Cysticerci of Carnivore Tapeworms.**—*Jl. of Parasitology** [U.S.A.]. 1914. Vol. 1. No. 1. pp. 42–44.

Three cases of *Taenia serrata* (*T. pisiformis*) in man were recorded by Vital in 1874, but have been consistently regarded by parasitologists as doubtful or erroneous. The author has on two occasions eaten the larvae of this dog tapeworm. In 1896 Moniez had fed *Cysticercus pisiformis* to two volunteers, and in 1898 Galli-Valerio had reported that he had once ingested six of these larvae. In no case did experimental infection result.

The author quotes the experimental work, already recorded in literature, with *Multiceps serialis* [*Coenurus serialis*], *Taenia teniaeformis* [*Cysticercus fasciolaris*], *Taenia ovis* [*Cysticercus ovis*] and *Taenia hydatigena* in support of the conclusion that adult cestodes of the genus Taenia occurring in carnivores do not occur in man. The converse is also true.

R. T. L.

Ransom (B. H.). **The Destruction of the Vitality of *Cysticercus bovis* by Freezing.**—*Jl. of Parasitology* [U.S.A.]. 1914. Vol. 1. No. 1. pp. 5–9.

The researches of Perroncito, Zschocke, Ostertag and others have definitely proved that a lapse of twenty-one, but not of fourteen, days after slaughter of cattle is sufficient to destroy the beef Cysticercus, and the meat inspection regulations of the United States and other countries accordingly allow carcases showing a slight degree of infestation to be passed for food after retention in cold storage for twenty-one days. The least objectionable and most practicable means of shortening this period would be exposure to low temperatures. Ransom has undertaken a series of fresh investigations to ascertain the minimum length of exposure and degree of frost necessary completely to destroy the vitality of cysticerci. Two beef carcases heavily infested with live cysticerci were allowed to hang for about 24 hours after slaughter in a chill room, the temperature of which was somewhat higher than the freezing point, then quartered and placed in a cold storage compartment in which the temperature varied between 11° and 15° F. but mostly from 14° to 15° F. One quarter carcase was kept as a control in the chill room. More than two days of exposure in the freezer was necessary to ensure that the beef was solidly frozen throughout. Portions removed after a lapse of three, four, five and six days were dissected after being allowed to thaw for 18 to 24 hours.

*See footnote page 519.

Of the Cysticerci there were found to be alive after three days 44 per cent. ; after four days 40 per cent. ; after five days 5 per cent. ; while after six days' exposure none showed any evidence of being alive either by microscopical examination or by infecting the writer, by whom they were swallowed. The Cysticerci from the quarter kept unfrozen as a control were all active after eight days.

On the basis of these experiments the United States Federal Meat-Inspection Regulations have been amended to permit beef carcases showing a certain slight degree of infestation to be passed for food if held for six days at a temperature not exceeding 15° F. (—9·44 C.), as an alternative to the requirement of retention for twenty-one days in coolers. As over 40,000 beef carcases are annually retained in the U.S.A. on account of *Cysticercus bovis*, these investigations should result in considerable saving.

R. T. L.

Archivos Brasileiros de Medicina.—1914. Jan.–Feb. Vol. 4. Nos. 1–2. 191 pp. With 8 plates. Rio de Janeiro : Redacção : R. Gonçalves Dias. 26.

This volume is a symposium on ankylostomiasis.* It consists of 14 papers and a Brazilian bibliography of the disease, containing 100 references. The papers, with one exception, are in Portuguese, but the conclusions are in many cases printed also in French or German.

Drs. Gomes Faria and Lauro Travassos (pp. 3–26) deal with the morphology, classification, and biology of ankylostomes. Their article is illustrated by 8 plates.

Dr. A. Austregesilo deals with infection through the skin. He has confirmed on the persons of two students the observations of Looss and others. One showed infection after 67 days, the other later.

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*I. Gomes Faria & Lauro Travassos. Morphologia Systhematica e a Biologia dos Ancylostomos. pp. 3-26.
II. Austregesilo (A.). Infestation de l'Ankylostomiase par la Peau. pp. 27-33.
III. Duque (Henrique). O Figado na Ancylostomose. pp. 34-38.
IV. Ayres (Octavio). O Coração na Uncinariose. pp. 39-43.
V. Esposel (F.). Perturbaçoes Mentaes na Uncinarióse. pp. 44-52.
VI. Ayres (Octavio). Perturbações Nervosas na Uncinarióse. pp. 53-66.
VII. Moreira da Fonseca (Joaquim). Hematologia na Ankylostomiase. pp. 67-110.
VIII. Gastão Luiz Cruls. Viscosidade do Sangue e sôpros Anemicos (Pesquisas na Ankilostomiase). pp. 111-120.
IX. Riedel (G.). Do Attrito Interno na Urina dos Uncinariosos e sua Relação com o peso da Molecula Elaborada. pp. 121-124.
X. França (Mauricio). Corprologia da Uncinariose. pp. 125-132.
XI. de Barros (Jacyntho). Epidemiologia no Brasil. pp. 133-138.
XII. Vieira Romeiro (E.). O Tratamento da Ankylostomaise. pp. 139-146.
XIII. de Almeida (Waldemar). Alguns Vegetaes da Flóra Brasileira empregados no Tratamento da Uncinariose. pp. 147-149.
XIV. Theses Recentes a Proposito da Uncinariose. 1908-1914. pp. 150-152.
XV. D'Utra E. Silva (Oscar). Sobre o Valor Therapeutico de alguns Anthelminticos. pp. 153-185.
XVI. Bibliographia Brasileira da Ankylostomiase. pp. 185-191.

Dr. Henrique Duque deals with the liver in ankylostomiasis. He finds that there is as a rule some enlargement, the result of congestion owing to increased function.

Dr. Octavio Ayres deals with the heart. The condition varies from one in which there is merely acceleration of pulsation to degeneration of the parenchyma.

Dr. F. Esposel (pp. 53–66) treats of mental disturbances, Dr. Octavio Ayres of nervous disturbances. These include abolition or diminution of knee jerks, increase of sensibility to pain, numbness, neuralgia, pain in head and tibia, amaurosis and hemeralopia, anisocoria and singing in the ears.

Dr. Joaquim Moreira da Fonseca (pp. 67–106) has a long article on blood changes. He gives a bibliography. His conclusions occupy 57 paragraphs.

Dr. Gastao Luiz Cruls writes, with tables and a bibliography, on the viscosity of the blood.

Dr. G. Riedel writes on the internal friction of the urine and its relation to the molecular weight, Dr. Mauricio França on the faeces.

Dr. Jacyntho de Barros writes on the epidemiology of the disease in Brazil, Dr. J. Vieira Romeiro on treatment; he prescribes either thymol, B napthol, or herba S. Maria (*Chenopodium brasiliense*). It is given every week till the eggs disappear.

Dr. Waldemar de Almeida writes on some plants of the Brazilian flora employed in treatment.

A list follows of recent theses published at Rio, with summaries of their contents.

Dr. Oscar d'Utra e Silva (pp. 153–182) writes concerning the therapeutic value of certain anthelminthics.

A. G. B.

Reed (Alfred C.). **Prevalence of Hookworm at Changsha.**—*China Med. Jl.* 1914. July. Vol. 28. No. 4. pp. 263–266.

A preliminary study of the prevalence of ankylostomes in the population of Changsha, a city of 300,000 inhabitants in Central China, shows that the percentage of helminthic infections in 120 unselected cases drawn indiscriminately from among servants, students, coolies, and other available persons in normal health, together with all hospital admissions during a limited period, was as follows:—

Hookworm	11·6 per cent.
Ascaris	60·8 ,, ,,
Tricocephalus	9·1 ,, ,,
Schistosoma japonicum	1 case.

Less occupational exposure, to which footbinding contributes, explains a rate of incidence of 3 per cent. amongst women as contrasted with 15 per cent. in man. The positive cases were scattered through many occupations, though farmers and boatmen were especially liable.

R. T. L.

Reed (A. C.). **Prevalence of Hookworm at Pinghsiang Colliery.—An Abstract.**—*China Med. Jl.* 1914. July. Vol. 28. No. 4. pp. 267-268.

The Pinghsiang Colliery in South Central China is the largest in China, and has very extensive underground workings. It employs about 9,000 men, of whom about 6,000 work underground. An examination of 272 persons showed a general incidence of 81·6 per cent. Of the 225 who worked underground 90·2 per cent. were found infected. The ratio of incidence was much less in the above-ground works. It is thought that the actual percentage obtained is a minimal figure, and that it really approaches 100 per cent. The only factors determining the rate of incidence are conditions in the mine itself—viz., the excessive moisture, high temperature, darkness, promiscuous defaecation, lack of sanitary control, and the habits and clothing of the coolies.

R. T. L.

Turberville (J. S.). **Hookworm Disease and Pregnancy.—The Dangers.**—*Southern Med. Jl.* 1914. Nov. Vol. 7. No. 11. pp. 862–864.

The author's observation has taught him not to fear abortion in hookworm patients. Previous writers must have had in mind the very worst cases, which are not common. Eclampsia is, however, a danger to which these patients are more exposed in consequence of their pregnancy. In a number of cases all the evidence of a grave toxaemia of pregnancy was relieved quickly and permanently by the eradication of hookworms. In hookworm disease the oedemas of pregnancy are apparently more frequent. The offspring as well as the hookworms exercise a parasitic function on the mother. The mother who is very anaemic from hookworm may bear a splendid-looking offspring.

R. T. L.

Jervey (J. W.). **The Influence of Hookworm Disease on the Eyes. A Study of Fifty-Three Cases.**—*Jl. Amer. Med. Assoc.* 1914. July 11. Vol. 63. No. 2. pp. 151–155.

A study of the eye symptoms in 53 hookworm patients leads the author to conclude that hookworm disease, by virtue of the qualitative and quantitative anaemia and the general systemic ill condition for which it is responsible, is, in this indirect way and in this way only, a causal factor in the various eye lesions described as accompanying it. None of the eye lesions is in any sense sufficiently distinctive or characteristic to be of diagnostic value. In the light of present knowledge the occurrence of eye symptoms in ankylostomiasis is to be regarded as purely incidental or as a sequel of general pathological conditions, but the signs of anaemia in the fundus may lead us to suspect hookworm infection as possible.

R. T. L.

VAN METER (B. F.). **Hookworm Arthritis. (Report of Case).**—*Kentucky Med. Jl.* 1914. July. Vol. 12. No. 13. pp. 429–430.

A report of a case of a boy, age 7, diagnosed as tubercular arthritis of both ankles. The boy was very thin and emaciated; both ankles were swollen and tender with limitation of movement in all directions. No oedema of the legs. Ova of ankylostomes were found in the faeces, and after treatment the patient put on 20 pounds in weight and was entirely freed from pain. The author regards this as a clear-cut case of hookworm arthritis.

R. T. L.

DINSMORE (Wm. W.) & MOSS (P. B.). **Report of an Interesting Case of Diabetes Mellitus showing Hookworm Infection.** *Southern Med. Jl.* 1914. June. Vol. 7. No. 6. pp. 485–487. With 3 figs.

This is a detailed history of a case of diabetes mellitus in a patient 16 years of age. The hookworm infection was of secondary importance, and no improvement took place in the condition after specific treatment for ankylostomes.

R. T. L.

DAY (H. B.). & FERGUSON (A. R.).—**The Treatment of Ankylostoma Anaemia.**—*Lancet.* 1914. July 11. pp. 82–87. With 8 charts.

In over 300 cases of Ankylostomiasis a regular blood examination has been made to test the efficacy of the treatment adopted. The paper gives, in a very illuminating way, the conclusions derived therefrom. A mixture of 3 to 4 grams of thymol with 3 grams of Beta naphthol was generally used. The addition of the Beta naphthol reduces the necessary dose of thymol and ensures a thorough breaking up of the crystals, which often tend to pack together in the cachets. Oleum chenopodii has been discarded because it is expensive and has a peculiarly disagreeable flavour most repulsive to patients.

In response to anthelmintic treatment a rise in the number of red corpuscles precedes the rise of haemoglobin. In severe chronic cases satisfactory improvement may not occur or may be delayed for some months. Hematinic treatment is usually essential; thus even in patients with severe anaemia there is a rapid amelioration, may be before all the worms are expelled. In the first week there is generally a rise of 20 to 30 per cent. in the haemoglobin value, slowly increasing later. In severe cases, although all the worms are expelled and arsenic given, there may be no rise of haemoglobin until iron is substituted, when the response is immediate. When iron is given from the first, any rise in haemoglobin value is a most useful guide to the expulsion of the worms, and a halt generally indicates that a further anthelminthic course is necessary. Reduced iron, ferric perchloride and ferrous sulphate yield an average haemoglobin increase of from 9 per cent. to 13 per cent. weekly. Blaud pills and the ammonio-citrate are slightly inferior. Organic preparations have no advantage, and preparations of haemoglobin are generally useless. Manganese cannot be substituted for iron. In severe cases the administration of arsenic is often essential to recovery and, where in such cases arsenic by the

mouth is ineffectual, hypodermic medication generally succeeds. By itself, however, arsenic is useless; iron is always essential to recovery in severe cases.

Persistent eosinophilia after complete expulsion of worms may be due to the presence of living larvae in the tissues. A high eosinophilia in the early weeks may fall when the responsive powers of the marrow are impaired by chronic anaemia. So long as there is fever rising over 100° F. from any cause haematinics are powerless to affect the anaemia. This fever may be due to malaria or to secondary infections at the sites of the bites in the intestines. Intense and persistent anaemia in ankylostomiasis generally denotes exhaustion and atrophy of the bone marrow.

R. T. L.

Ferguson (J. E. A.) **Report on the Peter's Hall District.** British Guiana.—Combined Court. Annual Session. 1914. 12 pp. Georgetown, Demerara: The Argosy Co., Ltd.

From experience extending over a number of years the author introduces a method of treating ankylostome infection in people on estates without impeding or disorganising the routine work. This method, which proved practicable and efficient, consists in the administration of a cachet of 10 grains of thymol *each night* for a period of many weeks. This moderate dose did not interfere in the least with the ordinary occupations. Repeated microscopical examinations showed a gradual diminution of the number of ova in the dejecta until at the end of four months these had entirely disappeared. On an average about a hundred pulverettes administered in this way were required to each person, but it was noted that the "pulverette" not infrequently appeared partially undissolved in the stools. All persons who harbour the parasite, who are not extremely anaemic and weak and who are otherwise free from disease, can undergo this course of treatment with perfect safety whilst following their usual occupation. It is also eminently suited to pregnant women and old people. The provision of latrines and the proper disposal of night soil is of course also necessary. [The author unfortunately fails to give the annual cost of the treatment.]

R. T. L.

Christie (W. F.). **Notes on the Migration of** *Ascaris lumbricoides*.—*Jl. R. Army Med. Corps.* 1914. Aug. Vol. 23. No. 2. pp. 201–205. With 2 figs.

In 800 post mortem records of the Straits Medical Service, Singapore, in which *Ascaris lumbricoides* were found in the intestines, only ten cases showed migration to other organs, namely, one to the lung, one to the peritoneal cavity, one to the stomach and seven to the liver. Clinical and pathological notes of five of the cases are given. Cases seldom show more than half a dozen round worms at a time. [This can scarcely apply to other countries, e.g. China.]

R. T. L.

Lê-Van-Chingh. **Tétanos Ombilical et Lombricose.** [Paragraph: Lombricose]. **Extrait du Rapport Médical Annuel de 1912 de la Province de Hung-Yen.** [Clinique d'Outre Mer.]—*Ann. d'Hyg et Méd. Colon.* 1914. Apr.-May-June. Vol. 17. No. 2. p. 602.

A case treated by santonin passed 531 Ascaris. In another case all the symptoms of acute appendicitis disappeared after the expulsion of 30 Ascaris.

R. T. L.

Nair (T. K. Gobindan). *Ascaris lumbricoides* **Infection in Malabar District.**—*Indian Med. Gaz.* 1914. Sept. Vol. 49. No. 9. pp. 349–352.

The author draws an alarming picture of the ravages caused by the *Ascaris lumbricoides*, especially in children, in the Malabar District of the Madras Presidency. "When once these parasites gain entrance into their body, they play such havoc of destruction on their hosts that only personal experience can convince." "There is a very high death-rate from round worm in Malabar and the causes of infantile mortality as shown in the village vital statistics are invariably a gross misrepresentation often due to want of expert examination." In one sad case "a devil's play was suspected by the folk, and my necromancy with the magical santonine drove out the devil the next day. People would not believe that I was no enchanter with satanic credentials." "A child of 18 months once passed 90 mature worms before me, and having thus delivered her enormous conception to the broad daylight of the earth the poor thing very silently merged into the tranquil sphere of eternity," etc. [Surely this article cannot have passed the distinguished Editorial Board of the Indian Medical Gazette.]

R. T. L.

Foster (W. D.). **Observations on the Eggs of** *Ascaris lumbricoides* - *Jl. of Parasitology.* [U.S.A.] 1914. Vol. No. 1. pp. 31–00

The eggs of *Ascaris lumbricoides* are sometimes atypical. In 1902 Miura and Nishiuchi drew attention to the not uncommon unfertilised egg. Last year Foster in a brief note reported another form in which the egg departed from the normal only in having an exceptionally long major axis. In the present paper the author gives the results of an examination of over 200 eggs derived from man and swine. No sharp demarcation occurs between the excessively long egg and the average egg, for specimens can be found to make a complete series. It is noteworthy, however, that the diameter remains fairly constant, as the length of the egg increases, while eggs from different worms varying greatly in size have also approximately the same diameter. No place could be found in the genital tract where the eggs when in a plastic condition would be subjected to pressure tending to give them this uniform diameter.

R. T. L.

Innes (J.Alexander) & Campbell (A. Elmslie). **The Occurrence of *Oxyuris vermicularis* in the Human Vermiform Appendix.**—*Parasitology.* 1914. June. Vol. 7. No. 2. pp. 189–200.

From a study of 100 unselected cases of appendicitis in which the appendix was removed by operation in Aberdeen, Scotland, the authors arrived at the following conclusions :—

1. The percentage of appendices from cases of appendicitis infected with *Oxyuris vermicularis* is a fairly high one. In Aberdeen it is 17 per cent.
2. Normal appendices show a much lower percentage of infection.
3. The appendices of children probably show a higher percentage of infection than those of adults.
4. The recurrent type of appendicitis is most frequently associated with Oxyuris infection.
5. There is probably a clinical type of Oxyuris appendicitis.
6. The suppurative type of appendicitis has practically no relationship to Oxyuris infection.
7. *Tricocephalus trichiurus* is not commonly found in the appendix.

The series of cases was mainly composed of adults whose ages ranged from 15 to 53 years, and the commonest age of infection with Oxyuris in the appendix seems to be between the 21st and 24th years.

R. T. L.

Fracker (S. B.). **Variation in *Oxyurias:* its Bearing on the Value of a Nematode Formula.**—*Jl. of Parasitology.* [U.S.A.] 1914. Vol. 1. No. 1. pp. 22–30.

In 1890 N. A. Cobb established a " nematode formula " for the diagnosis of species and has consistently used it for over one hundred species of free living round worms. The author set out to test its usefulness in the differentiation of species of parasitic nematodes, using about 100 specimens of *Oxyuris vermicularis* obtained from one patient and voided at the same time. He concludes that the use of the formula is likely to yield more confusion than assistance and to result in the multiplication of so-called species without a proper basis for their separation. A species should not be described as new on account of a deviation from the proportions of known species unless that deviation is great and fundamental. The space occupied by the reproductive organs should not be considered and little dependence should be placed on the width of the body. The proportionate size of the organs in Nematoda is, however, an important factor in their identification and should be stated in any description of a new species.

R. T. L.

Manoiloff (E.). **Untersuchungen mit dem Abderhaldenschen Dialysierverfahren bei Helminthiasis.** [Investigations with Abderhalden's Dialysis Process in Helminthiasis.]—*Wien. Klin. Wochenschr.* 1914. Mar. 12. Vol. 27. No. 11. pp. 269–271.

The author refers to the observations of Rubinstein and Julien, who thus tested the serum of 20 horses infected with *Ascaris megalocephala.* The serum of 18 gave a positive reaction. This shows that the serum of horses infected with ascarides contains ferments which

in vitro are able to split up the albuminoid substances of the fluid portions of the parasites, and also that the infected animals absorb substances from the parasites and produce specific antibodies. The author gives details of his technique. He examined 18 persons infected with *Taenia solium* and four with *Ascaris lumbricoides* by the dialysis process. The results are shown in two tables. In the 18 cases of *T. solium* the result was positive in each instance and the controls were all negative. Microscopic examination of the faeces for eggs failed to show them in seven instances. In every case tapeworms were expelled by treatment. In the four cases of *Ascaris lumbricoides* the result was positive in each instance and the controls were negative. It follows, the author writes, that by the use of Abderhalden's dialysis process, in the case of *T. solium* and *A. lumbricoides* very useful results can be obtained, which can be used for clinical purposes.

[Readers desirous of obtaining further information upon the dialysis process should consult ABDERHALDEN'S "Defensive Ferments of the Animal Organism"—Bale, Sons & Danielsson.]

A. G. B.

HALL (Maurice C.). **Unusual Case of Fatal Poisoning from the Administration of Male-Fern as a Vermifuge.**—*Jl. Amer. Med. Assoc.* 1914. July 18. Vol. 63. No. 3. pp. 242-243.

The danger of the oleoresin of male-fern in unqualified hands is well illustrated in this short paper. A young man, aged 23, was prescribed a remedy for "worms" by a quack doctor. Two or three eight-ounce bottles were taken and caused considerable nausea and diarrhoea. Thereafter he took, as directed, one or two ounces of castor oil and twenty drops of turpentine. Alarming symptoms followed, terminating in death. At the necropsy on the day following death, the rigidity and cyanosis had disappeared. Both lungs were oedematous, the liver enlarged, the spleen somewhat congested. Both kidneys were congested. The upper portion of the intestine for about three feet from the pylorus was haemorrhagic and intensely inflamed. There were other inflammatory areas lower in the intestine. The amount of male fern taken could not be exactly ascertained, but evidently it was in excess of the usual dose, while the addition of castor oil would increase the absorption and toxicity of the drug.

R. T. L.

MISCELLANEOUS.

Howson (Frank), Holmes (Martyn J.) & Maplestone (Philip A.). **The Working Power of the White Man in the Tropics.** (Correspondence.)—*Brit. Med. Jl.* 1914. Oct. 17. pp. 692–693.

The authors writing from Darwin state that, as regards the working power of the white people in the Northern Territory of Australia, those who spend their whole existence in the open or exposed to the full force of climatic conditions are capable of as good a day's work as are the men working in more temperate climates and that they retain their strength and vigour unimpaired after many years of residence in the territory. Such people take no precautions to protect themselves against the actinic rays of the sun, their working costume often consisting of boots, breeches and a felt hat only. On the other hand people who become accustomed to umbrellas and screen themselves from the sunlight are less healthy and less capable of severe exertion.

According to the authors there is a comparative absence in Northern Australia of the diseases usually prevalent in other tropical countries, and they consider that the great bar to the settlement and development of the tropics by the white race is the presence of these diseases and not climatic unsuitability.

G. C. Low.

Taylor (F. H.) & Young (W. J.). **The Coastal Climate of Tropical Queensland. Meteorological Observations taken at Townsville.**—*Jl. Trop. Med. & Hyg.* 1914. Aug. 1. Vol. 17. No. 15. pp. 225–227. With 2 figs.

A daily series of observations of the local meteorological conditions prevailing at the Australian Institute of Tropical Medicine, Townsville, North Queensland, was taken from April, 1913. The present paper deals with these, the records having been summarised in a series of tables.

A comparison of the intensity of the sunlight, as regards those rays in the violet and ultra-violet portions of the solar spectrum, is given for Townsville and other tropical places, this having been calculated by the oxalic acid decomposition method as recommended by the late Dr. Freyer of the Bureau of Science, Manila.

The figures given by the authors demonstrate that there is no difference between the hot and cool seasons as regards the maximum intensity of sunlight and that the lower averages which are obtained during the hot wet season are due to the fact that during this time there are a number of days when the sun is obscured by clouds. The high yearly average is accounted for by the long dry season with its continuous sunny weather.

G. C. L.

Chamberlain (Weston P.). **The Influence of Tropical Residence on the Blood.**—*Amer. Jl. Trop. Dis. & Prevent. Med.* 1914. July. Vol. 2. No. 1. pp. 41–54.

The subject is discussed under three headings—erythrocytes and haemoglobin, leucocytes, and significance of the findings. A series

of blood estimations is given and these are compared with similar observations made upon male Bengalese in India by McCay. This observer found an average of 5,300,000 red cells per cubic millimeter with 81 per cent. of haemoglobin (Haldane's method). Chamberlain's average erythrocyte counts at different periods ranged from 5,111,000 to 5,355,000 per cmm. with an average haemoglobin percentage of 88 to 90. Granting therefore that the blood of young healthy white men of 20 months residence in the Philippines contains about 5,300,000 red cells per cmm. and 88 to 90 per cent. of haemoglobin, the author asks whether this condition differs from that prevailing in temperate zones. From a comparison of counts made in the latter regions he believes it does not.

As regards the number of leucocytes the author's observations showed nothing unusual for either whites or natives. The mean count of 62 healthy Americans with an average service of 14·6 months in the Tropics was 7,304 white cells per cmm. and for another group, consisting of 175 Americans with an average tropical service of 20 months, 7,062.

Commenting upon the significance of the blood findings in the Philippines the author comes to the conclusion that tropical anaemia, due to the effect of climate *per se*, does not exist. More recent investigations have shown that much of the anaemia formerly classified under this heading was in reality secondary to infections with malaria, ankylostomiasis, kala azar, etc. He suggests that the paleness seen in so many people in the Tropics is due to cutaneous ischemia from a reduction of the supply of blood to the surface by contraction of the superficial vessels. This theory, according to him, not only explains the occurrence of tropical pallor but also accounts for the fact of its disappearance in a few days on returning to a cold region.

G. C. L.

Tschudnowsky. **Acclimatement dans les Pays Tropicaux.**—*Trans. xvii Intern. Congress of Med.* London, 1913. Sect. xxi. Trop. Med. & Hyg. Pt. 2. pp. 63-73.

A paper dealing with the question of the acclimatisation of the white race in the tropics. Physiological arguments are put forward to prove that this is possible and statistics are given. The action of the sun, according to the author, instead of causing tropical troubles, on the contrary destroys pathological germs. He believes that pathological arguments which are brought forward to prove the impossibility of acclimatisation of the white man in the tropics, are defective scientifically and erroneous in their practical interpretation. Finally he concludes (1) that there should be a systematic and methodical cultivation of the soil and adjoining forest; (2) That methodical physical exercise should be adopted in the open air as in temperate zones; (3) That methodical and systematic intellectual exercise should also be practised as at home.

In a discussion which followed Van Loghem stated that many of the statistical tables brought forward by the author concerning the Dutch Indies, particularly Deli, Sumatra, were incomplete. [As has so often been pointed out there is something in the tropical atmosphere which is prejudicial to the white man apart altogether from organic diseases.]

G. C. L.

Mouchet (René). **Note sur** *Porocephalus moniliformis*.—*Bull. Soc. Path. Exot.* 1914. June. Vol. 7. No. 6. pp. 497–501.

Porocephalus moniliformis, according to the author, is frequently found in the Tropics. He refers to Seiffert's autopsies in Kamerun and also to Broden and Rodhain's figures for the Belgian Congo [see also this *Bulletin*, Vol. 1, p. 405]. [According to Sambon *Porocephalus armillatus* is the African species, *Porocephalus moniliformis* belonging to the Oriental region. The latter name, however, has been used by Seiffert and others for the African species.]

The author in a numerous series of post-mortem examinations conducted at the native hospital of Leopoldville in 1911–12 has frequently met with porocephalus larvae. Of 133 adults who came to autopsy 30 were infected, or 22·56 per cent. These cases came from widely distributed areas of the Congo.

In many of the cases the parasites had not set up any perceptible lesions; their number, however, was usually small, rarely over ten. In 32 cases studied a total of 269 larvae were recovered, the following table showing their distribution in the different organs and tissues of the body :—

Encysted in :—	
Liver, subcapsular	74
Liver, parenchyma	69
Intestinal wall	25
Mesenteric glands	26
Peritoneum; parietal, renal, splenic	17
Great omentum	17
Mesentery	26
Lung, parenchyma	9
Lung, subpleural	1
Non encysted :—	
Fixed by the head to the peritoneum	2
Free in a lymphatic of the mesentery	1
Free in the peritoneal cavity	2

The natural termination of the larva in man, in the author's experience, is calcification. It is not uncommon to find side by side with living larvae calcified cysts, in which the form and striation of the parasites are perfectly recognizable. Adult porocephali were also found in pythons at Leopoldville. Measurements of these are given and the author states that they were determined as *P. moniliformis* by Eysell of Cassel. [See comment above.] G. C. L.

Corin (G.). **Présence de Larves de Porocéphale chez** *Tragelaphus scriptus* **(Antilope Rayée Commune).**—*Bull. Soc. Path. Exot.* 1914. June. Vol. 7. No. 6. p. 502.

The author reports the finding of porocephalus larvae in a common African antelope, the *Tragelaphus scriptus*. As he says, many animals have been found to harbour these larvae as well as man. They have been found by Schäfer in another antelope, *Cephalophus leucogaster*. All the larvae found by the author were encysted and the great majority were living and not calcified. None were seen in a free state. They were found in the liver and spleen, in the intestine, stomach, gravid uterus, peritoneum and mesentery. C. L.

Füllborn (F.). **Ueber die Entwicklung von Porocephalus.**—*Trans. xviith Intern. Congress of Med.*, London, 1913. Sect. xxi. Trop. Med. & Hyg. Part. 2. pp. 297-298.

This was a very interesting demonstration on the development of the larval forms of *Porocephalus clavatus*. A series of lantern slides was used illustrating the development, these showing very distinctly the encysted parasites in the different tissues and organisms of infected monkeys.

G. C. L.

Landois (Felix) & Hoepke (Hermann). **Eine endoparasitäre Milbe in der Lunge von** *Macacus rhesus*. [An Endoparasitic Acarus in the Lung of *Macacus rhesus*.]—*Centralbl. f. Bakt.* 1. Abt., Orig. 1914. Apr. 25. Vol 73. No. 6. pp. 384-395. With 1 plate and 3 text figs.

Previous records of the presence of endoparasitic acari are first discussed. Whilst carrying out some experiments on bone transplantation in monkeys the authors discovered in the lung of one of these animals eight to ten rounded nodules, resembling tubercle, but which on fresh examination were found to be due to the presence of a living acarus. These nodules did not communicate with a bronchus and were stained a grey yellow to a light yellow colour. The parasites were examined by Hoepke who gives a detailed description with drawings of them and proposes the name *Pneumotuber macaci*. The paper is illustrated with drawings of the acarus and micro-photographs of its appearance in the lung. The literature of the subject is also given. [Those interested should consult the original.]

G. C. L.

Bernard (P. Noël). **Sur un Rhizopus pathogène de l'Homme :** *Rhizopus equinus* **Lucet et Costantin 1903, variété** *annamensis* **P. Noël Bernard 1914.**—*Bull. Soc. Path. Exot.* 1914. May. Vol. 7. No. 5. pp. 430-437. With 1 text fig.

At the present day three pathogenic species are known in the genus Rhizopus : (1) *Rhizopus cohni* Berlese and Toni 1888, observed by Lichtheim in the rabbit for which it is very pathogenic ; (2) *Rhizopus niger* Ciaglinski and Hewelke 1893, found in man in a case of black pilous tongue, innocuous to the rabbit ; (3) *Rhizopus equinus* Lucet and Costantin 1903, found in the horse and very pathogenic for the rabbit.

The author has now isolated from the expectoration of an Annamite suffering from chronic bronchitis in Hué, Annam, a Rhizopus which he describes in this paper. The fungus is very similar to *Rhizopus equinus* but differs from it in the shape of its columella and by its cultural characteristics. These are given in detail, as are also a series of experiments dealing with the receptivity of animals to the infection. Rabbits after the fifth day cease to eat, become seized with violent convulsions and die twelve to thirty-six hours after the commencement of the symptoms. The autopsy shows the organs to be congested and to present on their surface isolated miliary tubercles.

G. C. L.

Castellani (Aldo). **Report on Investigation Work carried out at the Clinic for Tropical Diseases and Bacteriological Institute, Colombo, Ceylon, from 1st January to 30th June 1914.** Received in Colonial Office Aug. 25, 1914.

The Report deals with research work upon :—

(1) Combined vaccinations.

(2) Fungi found in sprue.

(1) As regards the first heading the author has combined typhoid, para-typhoid A, and para-typhoid B in one vaccine and cholera and plague in another, but now proposes to combine a vaccine from all these five organisms and gives the technique for its preparation. Further, another combination including undulant fever instead of plague and cholera is detailed, as also a combination of dysentery, typhoid and paratyphoid. According to the author, persons inoculated with the above vaccines generally produce combined agglutinins for the different species of bacteria and the amount for different species is not much less than in control individuals inoculated with simple, one-disease vaccines. The only exception, and this a partial one, is in the case of typhoid-dysentery vaccines. Castellani believes that these combined vaccines when efficient are of practical advantage, saving a great deal of time and rendering possible a contemporaneous vaccination for several maladies.

(2) Kohlbrugge in 1901 found a fungus in cases of sprue which he identified with the thrush fungus (*Monilia*, *Oidium*, *Endomyces*, or *Saccharomyces albicans*). He made a very complete histological study of one of his cases which ended fatally and emphasised the fact that the fungus in sections of the tongue, etc. had invaded the deep strata of the mucosa, the glands and portions of the submucosa. He concluded that the thrush fungus was the cause of the disease.

From 1909 the author, being interested in the subject of fungi in general, studied the intestinal flora of a number of typical cases of sprue, as well as of other conditions and normal individuals, and has come to the conclusion that there are several different species of intestinal Monilia. In practically every case of sprue it is easy to find such parasites in the stools and scrapings from the tongue. A list of these is given, showing the action of the different species on carbohydrate media and their other cultural characteristics. The conclusions the author reaches are as follows :—

"1. In practically every case of sprue it is possible to put in evidence fungi, microscopically or culturally.

"2. These fungi do not all belong to the same species—the so-called 'thrush fungus' or *Monilia albicans*, as stated by Kohlbrugge and all other observers who have confirmed his findings.

"3. As I have stated since several years, there is a plurality of species of such fungi, and the term *Monilia albicans* has been used in the past to cover a large number of different species and possibly different genera, in the same manner as in the past the term *B. coli* was used to cover a great number of different bacteria. As a matter of fact, *Monilia albicans sensu stricto* (*M. albicans*, Robin, 1853, em. Cast., 1909) has never been observed by me in sprue cases, as none of the Monilias isolated by me in sprue liquefies gelatine.

"4. The following, probably good species, have been isolated from the stools or scrapings of tongue and saliva of sprue patients : *Monilia*

intestinalis, Cast., 1911; *Monilia decolorans*, Cast. and Low, 1913; *Monilia faecalis*, Cast., 1911; *Monilia tropicalis*, Cast., 1911; *Monilia asteroides*, Cast., 1914. The same patient may occasionally harbour two or more different species. *Monilia intestinalis* and *Monilia decolorans* have so far been found only in sprue cases; the other species have been found in several other conditions besides sprue."

G. C. L.

Leon (N.). **Notes de Parasitologie.**—*Centralbl. f. Bakt.* 1. Abt., Orig. 1913. Vol. 72. No. 4/5. pp. 380-385. With 6 text figs.

The case of a child, who died in Roumania of asphyxia due to an ascaris passing into the lung, is described. During a fit of coughing, followed by vomiting of an ascaris, the child presented alarming symptoms of asphyxia and died in a few minutes. At the autopsy it was found that an ascaris, which had migrated from the intestine, had passed into the larynx during the fit of coughing, had then descended the trachea, and come to rest in the right bronchus.

The author would not have published the case unless he had also seen analagous ones in dogs. These prove that the parasites may migrate during life and not solely after death.

The second case described is one of Trichorrhexis nodosa; figures are given showing the affected hairs and the parasites cultured from them.

The third case is described as creeping disease from Roumania. The patient, a woman aged 42, complained of pains in the back accompanied by intense itching and pricking sensations especially when in bed at night. On examination a red line about 2 mm. broad was noticed on the upper part of the back towards the middle. The progress of this line was noted for fourteen days, during which time the patient remained in hospital. For some days the larva rested during which time all itching ceased. It then began to move again, leaving its characteristic red line. For the last days before leaving hospital no more itching had occurred and the author believes that the larva had either attained its complete development, or had escaped from the skin, or was making a prolonged rest in its subcutaneous travels.

G. C. L.

Mühlens (P.). **Behandlung bedrohlicher Zustände bei Tropenkrankheiten.** [The Treatment of Threatening Conditions in Tropical Diseases.]—*Deut. Med. Wochenschr.* 1914. June 18. Vol. 40. No. 25. pp. 1249–1252.

A general dissertation on the treatment of tropical maladies. Amongst those discussed are amoebic dysentery, Asiatic cholera, sprue, beriberi, plague, yellow fever, dengue, pappataci fever, undulant fever, typhus, bilharziasis and leprosy. The usual remedies employed in these conditions are discussed. Nothing very striking is brought forward in the way of treatment.

G. C. L.

GROTHUSEN. **Salvarsan bei Tropenkrankheiten nebst Bemerkungen über einige tropische Hautkrankheiten.** [Salvarsan in Tropical Diseases with Remarks on Tropical Skin Diseases.]—*Arch. f. Schiffs- u. Trop. Hyg.* 1914. Aug. Vol. 18. No. 15. pp. 515–528.

Reference is made to a previous paper on the treatment of yaws by salvarsan. Sixteen cases of this disease were treated with neosalvarsan with good results. The present paper deals with the treatment of further cases of the same disease, while syphilis, ulcus tropicum, ulcerating granuloma, relapsing fever and other diseases are also mentioned.

The author believes that the drug is best given intravenously. In yaws 83·1 per cent. of the the cases were cured by a single injection, but in 16·9 a second was required. In cases of tropical ulcer salvarsan was quite useless. In three cases of ulcerating granuloma a relatively quick cure occurred after the administration of this drug.

G. C. L.

VAN DEN BRANDEN (F.) & DUBOIS (A.). **Notes Préliminaires sur l'Emploi du Néosalvarsan dans Diverses Affections Tropicales.**—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. June. Vol. 18. No. 11 pp. 375-385.

The authors treated 242 native patients with neosalvarsan. Of these 107 were suffering from trypanosomiasis, 77 from yaws and 50 from syphilis. A table giving the complaint from which the patient suffered and the results of the treatment is inserted. Syphilis and yaws were benefited to a remarkable degree, just as with the old salvarsan.

In the trypanosomiasis cases sterilisation of the blood was not so quickly accomplished as with salvarsan, but the authors believe that the remedy influenced the general state favourably. They do not state definitely, however, how many of the cases relapsed subsequently.

Amongst other diseases in which the drug was tried were filariasis, bilharziasis, leprosy and amoebic dysentery.

G. C. L.

RODENWALDT. **Ueber die Verwendung von Levicowasser bei Rekonvaleszenten in den Tropen.** [On the Use of Levico Water for Convalescents in the Tropics.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. Apr. Vol. 18. No. 8. pp. 287-288,

A supply of Levico water was sent out to Rodenwaldt by Professor NOCHT for trial in cases convalescing from different diseases in Togo, West Africa.

A series of six persons not specially ill was selected, most of them suffering from loss of appetite, a desire not to work, and nervous debility caused by the intense heat which prevailed during the first five months of 1913. In all the cases the patients responded promptly, the appetite returning and the weight going up. They also slept better and the nervous symptoms largely disappeared.

G. C. L.

Motais (F.), Jamot (E.) & Robert (M. J. F.). **Notes sur la Géographie Médicale du Ouadai.**—*Bull. Soc. Path. Exot.* 1914. June. Vol. 7. No. 6. pp. 522–528.

Ouadai lies to the east of the Chad Basin and has a sub-desert climate. The following diseases were met with:—Tuberculosis rarely, bronchitis, broncho-pneumonia and pneumonia fairly commonly, scarlet fever and measles never, but small-pox was seen. Of tropical maladies ainhum, dysentery, leprosy, mycoses of different sorts, filariasis, elephantiasis, guinea worm, bilharziasis and infantile splenomegalies are mentioned. Malaria is very rare, no doubt owing to the very dry nature of the climate.

G. C. L.

Clarac. **Principales Maladies Epidémiques observées en Indochine en 1912. Extrait des Rapports de l'Inspection Générale des Services Sanitaires et Médicaux.**—*Ann. d'Hyg. et Méd. Colon.* (Clinique d'Outre Mer). 1914. Apr.–May.–June. Vol. 17. No. 2. pp. 563–571.

The different diseases are given in tabular form. Plague was met with in Cochinchina, Cambodia, S. Annam and the territory of Kouang-Tcheou-wan; cholera in S. Annam, Cochinchina, Cambodia and Laos; relapsing fever in N. Annam and in the Tonkin delta; malaria in epidemic form in Central Annam. In addition amoebic and bacillary dysentery caused numerous deaths in N. Annam, Saigon and Cholon. Of European diseases typhoid fever, small-pox and measles are mentioned. [Those interested should consult the table which is too long for insertion].

G. C. L.

Le Roy des Barres (A.). **Fonctionnement de l'Hôpital Indigène du Protectorat à Hanoi pendant l'Année 1913.**—*Bull. Soc. Med. Chirurg. de l'Indochine.* 1914. June. Vol. 5 No. 6. pp. 238–289.

During 1913, 10,536 patients were admitted to the hospital, representing 208,943 days of treatment. The number of deaths was 792, or 6·6 per cent. The maladies treated are given in a series of tables and the author discusses some of the most frequently seen of these, such as enteric fever, rabies, malaria, recurring fever, beriberi, dysentery, syphilis, yaws, tubercle and malignant tumours. Intestinal parasites were found in 264 patients as follows:—Flukes in 3, taenias in 18, ankylostomes in 129, and ascaris in 214. As regards diseases of the eye trachoma was very common, and as regards intoxications opium mania was not infrequent.

G. C. L.

Todd (John L.). **Paralysis and Tick-Bite.**—*Canadian Med. Assoc. Jl.* 1914. Sept. Vol. 4. No. 9. pp. 825–826.

Todd writes to say that it is now two years since he suggested that peculiar symptoms might follow the bites of ticks in children in British Columbia. Since that time tick paralysis has been definitely recognised as a clinical condition. As the author says, this paralysis is

something quite apart from the local lesions which may follow at the site of a tick bite, and it is clinically quite distinct from spotted fever. The usual history of such a case is that a young child, perfectly well one day, on the next has more or less complete paresis or paralysis. Sometimes the paralysis is the only symptom noticed, but in addition there may be fever, rapid pulse and other constitutional symptoms. The child may be dull and stupid, and convulsions sometimes are met with. If the tick is not found and removed the child may die, but when it is removed the symptoms gradually disappear and recovery is complete. The rapidity of the onset of the paralysis suggests that the paralysing agent is a toxin elaborated by the tick, but nothing is known of the way in which the paralysis is produced. The author expresses the hope that every practitioner who meets with such cases in British Columbia will examine them carefully and record his observations.

G. C. L.

ZANNINI (William). **Due Nuovi Casi di Sokodu in Italia.**—*Gazz. d. Ospedali e d. Cliniche.* 1914. June 23. Vol. 35. No. 75. pp. 793–794.

Reference is made to the case of rat-bite disease described by FRUGONI (see this *Bulletin*, Vol. I, p. 409). The author describes two further cases of the disease. Two sisters, eight and five years of age, were bitten one night by a rat. The lesions healed in two or three days, but sixteen days afterwards the children became ill, the bites showing inflammation. The symptoms exhibited were typical. For treatment electrargol was employed, apparently with successful results, the complete duration of the disease being only about three months. At the time of writing the children were in perfect health.

G. C. L.

NIXON (J. Hobart). **"Rat-Bite Fever" caused by a Ferret.** (Memoranda).—*Brit. Med. Jl.* 1914. Oct. 10. p. 629.

A man was bitten by a ferret whilst catching rats. The wound, inflicted on the thumb, was small and no particular attention was paid to it. On the third day it became inflamed and the glands in the axilla painful. In addition to these local symptoms there was extreme weakness, shivering, sweats and a temperature of 104° F. In four days these symptoms had disappeared, but a week later they recurred, and on this occasion an erythematous rash appeared near the wound, which had now completely healed. Another relapse appeared ten days later, and on this occasion the erythematous patches invaded the arms and chest also. The patient was treated by inunctions of mercury and did well.

The author, on looking up the literature, found that a similar case had previously been described.

G. C. L.

Whitamore (V. N.). **Some Observations on Anaemia occurring among Indian Troops stationed in Singapore 1912-1913.**—*Indian Med. Gaz.* 1914. Sept. Vol. 49. No. 9. pp. 342–345.

The observations were based upon one and half years' medical charge of the 3rd Brahmans, stationed in Singapore from July 12, 1912, till April 8, 1914. As regards the cause, nothing definite was ascertained, but the condition was widespread, the general course of the symptoms being very similar in the different cases. These were loss of appetite, marked pallor, asthenia, wasting, and in most cases an intermittent temperature of variable duration. Two conditions that might give rise to such symptoms, which presented themselves to the author's mind, were chronic malaria and ankylostomiasis. As regards the former, the proximity of an extensive swamp which harboured anophelines was suggestive, but the absence of a malarial history prior to admission for anaemia in some cases, the negative results of repeated blood examinations, and the failure of quinine as a remedy, make it difficult to accept a malarial origin. On the other hand, though the symptoms clinically resembled those found in ankylostomiasis, repeated examinations of the faeces by different observers at different laboratories failed to show any ova of these parasites. Though this was so, thymol was given an efficient trial. In some instances emetine seemed to do good, especially in cases with intestinal symptoms. For general treatment, however, arsenic or some of its compounds was found to be the most useful drug, checking, and in some instances improving, the condition.

G. C. L.

Wick. **Gundu in Neu-Guinea.**—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. June. Vol. 18. No. 12. pp. 403–407. With 2 figs.

The author reports the presence of goundou in New Guinea, and the photographs he gives of the condition show that his diagnosis is correct. In considering the differential diagnosis of the condition he states that leprosy, rhinoscleroma, sarcoma, syphilis and yaws must be excluded. He treated his case in the following manner:—First with injections of neosalvarsan on the assumption that syphilis or yaws might have something to do with the condition, but no amelioration took place. After that he injected fibrolysin into one side of the tumour. Owing to the hardness of the tissues, the injections were difficult and much pain was caused. After the eighth injection a small gangrenous place appeared. The dead tissue was ultimately thrown off. After this the ulcerative surface left gradually granulated up and eventually healed. Owing to the patient having to leave by steamer, the treatment could not be continued. The author, however, hopes to obtain further information about the patient at a later date.

G. C. L.

Peiper (Otto). **Meningitis, Urinphlegmone, Gundu, Phagedänismus.**—*Arch. f. Schiffs- u. Trop.-Hyg.* 1914. May. Vol. 18. No. 9. pp. 306-317.

During the author's stay in Daressalam he saw frequent cases of meningitis, many severe and fatal.

As regards goundou an interesting case is described. The patient, 35 years of age, presented two almond-shaped swellings of bony hardness,

one on each side of the nose. Pressure on these did not cause pain and there was no obstruction to the nasal passages. There was also no hypertrophy of the nasal mucous membrane nor was there any nasal catarrh and running of tears. The patient, who came from Muansa in the hinterland, said that both the swellings appeared at the same time, between the age of twelve and fourteen, and that for some weeks there were pains in the nose and forehead. Though an intelligent man he could not remember whether he suffered from nasal catarrh and a running from the nose. No history of syphilis was obtainable, but in childhood the patient had suffered from yaws.

G. C. L.

i. Couchoud (P. L.). **Le Kubisagari (Maladie de Gerlier).**—*Rev. de Méd.* 1914. Apr. 10. Vol. 34. No. 4. pp. 241–296. With 4 text figs.

ii. Conchoud [Couchoud] (P. L). & Shionoya (F.). **Clinical and Bacteriological Study of the Kubisagari Disease.**—*Sei-I-Kwai Med. Jl.* 1914. June 10. Vol. 33. No. 6. (Whole No. 388). p. 35. **(The Original in *Jl. Tokyo Med. Assoc.* Vol. 27. No. 22.)**

i. The author points out that Kubisagari has only been observed in two parts of the world—namely, on the Franco-Swiss frontier and in the north of Japan. The present observations are the result of researches carried out by the author during the course of a voyage to Japan. The characteristic symptoms described by Gerlier in the first cases seen in Switzerland are detailed and then the observations of Miura on the disease as occurring in Japan. The author was fortunate in being able to see a considerable number of cases, records of no fewer than 33 being given, while excellent photographs of some of these are incorporated in the text. Bacteriological researches were also carried out, and a coccus was isolated from some of the patients. The characteristic features of this organism on different culture media are described, together with a series of experimental inoculations into cats. It is finally noted that the disease exists as a malady of horses and cows in Japan, an observation also made by Gerlier on Lake Geneva.

ii. The chief symptoms found in this peculiar disease are as follows :— During the attack there is ptosis, cloudiness of the field of vision, hanging down of the head and neck together with paresis of the majority of the muscles of the body, especially the extensors. Individual differences in the symptoms are sometimes noticed. There may be, for example, differences in the degree and number of the attacks, and secondary phenomena such as diplopia and pain during the illness may be present or absent.

Bacteriologically the authors isolated two kinds of cocci—one from the cerebrospinal fluid, the other from the milk of the patients.

[This disease is also known by the name of endemic paralytic vertigo and is characterised by ptosis, dimness of vision and paralysis as stated above. It was first described by Gerlier in Switzerland in 1886 and by Miura in Japan in 1894. The etiology is unknown, but some observers have noticed an association of the disease with stables.]

G. C. L.

Diaz (E.). i. **Adenomycose endemica (Nova Molestia humana). (1a. Nota prévia).** [Endemic Adenomycosis; a New Disease of Human Beings. A Preliminary Note.]—*Brazil Medico.* 1914. Apr. 8. Vol. 28. No. 14. pp. 133-134.

ii. **Nova Molestia humana? (Adenomycose endemica) (2a. Nota prévia).**—*Ibid.* Apr. 22. No. 16. pp. 153.

i. In this short preliminary note the author describes a hitherto unrecognised disease, which is to be met with in the mining provinces of Brazil. He proposes for it the name of endemic adenomycosis, because it consists of a symmetrical enlargement of the glands of both sides of the neck apparently due to the invasion of a spore-bearing mould. The symptoms usually begin with the painless enlargement of a single gland, but the disease rapidly extends to all the glands of the anterior triangle of the neck on both sides, so that a voluminous bilateral tumour is formed. The glands of the posterior triangle appear to be always exempt, nor is there any extension to the glands of other parts of the body, not even to those in the axillae. After the lapse of a few months fever and cachexia supervene, with enlargement of the liver and spleen, and eventually the patient dies, after perhaps two or three years from the commencement of symptoms. The disease appears to be always fatal, and attacks persons of all ages. The affected glands are not painful to the touch and never suppurate. The blood shows a considerable reduction in the amount of haemoglobin and a moderate reduction in the number of red cells, while the leucocytes may amount to 20,000 per cubic mm. The disease appears to be absolutely distinct from both tuberculosis and syphilis and is in no way benefited by antisyphilitic remedies, except that iodide of potassium in some cases seems to produce some slight alleviation of the symptoms. It also differs manifestly from Hodgkin's disease.

From the expressed juice of affected glands and the blood of patients the author finds that he has been able to cultivate, with great certainty, a spore-bearing mould which kills laboratory animals by septicaemia, producing in some cases, in them also, a similar glandular enlargement. On Sabouraud's maltose medium, after 3 or 4 days, a growth is obtained of small prominent, slightly moist, yellow colonies which coalesce and after the lapse of about 20 days develop a white filamentous mass of spore-bearing hyphae, the same type of growth being obtained upon potato and carrot, either glycerinated or not.

In smears of gland-tissue and blood from inoculated animals similar spores are to be detected under the microscope, and the disease can be thus transmitted from animal to animal. Further particulars are promised.

It is stated that the disease described by Franchini, also from Brazil, from which his *Haemocystozoon brasiliense* was isolated, corresponds exactly with this disease (see this *Bulletin* Vol. 2, pp. 45 and 46).

ii. In a further note the author gives a more detailed account of the cultural characteristics of the mould. On maltose agar, after the lapse of two to four days, small points of culture appear, of a creamy aspect, and of a café-au-lait colour, having a smooth surface and sharp edges. At the end of 15 days, more or less, the colonies have the following appearance:—The diameter is about 3 centimetres,

and in the centre the surface is slightly wrinkled, with a series of symmetrical furrows all round. After the lapse of a further 30 days a growth of aerial hyphae appears, at first white but afterwards turning slightly yellow. The spores, of oval form, are from 2 to 3μ in length and are arranged either in clusters or chains. The hyphae sometimes form bundles as much as 4 cm. in length by 1 mm. in diameter. The development of the spores can be conveniently watched in hanging-drop cultures of maltose broth. They swell up and elongate into septate hyphae, which at the margin of the drop become aerial and present the characters of the growth on solid media.

As the author cannot find that this mould has been previously described, he proposes for it the name of Adenomycosis cruzi. A further description is promised of the microscopic appearances presented by the infected glands and the blood of patients, with illustrations.

J. B. N.

CANTLIE (James). **Some Aspects of Surgery in the Tropics.**—*Trans. Soc. Trop. Med. & Hyg.* 1914. June. Vol. 7. No. 6. pp. 195–210.

The author began his paper by stating that as regards the actual performance of surgical operations there was no essential difference in the manipulations necessary whether the operations were conducted in the temperate or torrid zones, but that surgeons practising in warm climates had to deal with certain ailments more frequently than their fellow workers in the north. Chloroform was the favourite anaesthetic in the tropics, and there was no reason to think that it would be supplanted.

As regards hepatic abscess—one of the common tropical conditions—the author believed the use of emetin had made the treatment much more encouraging. The destruction of the amoebae, even after an operation had been performed, lessened the period of drainage necessary and hastened the healing of the abscess. As regards the operation itself, he laid down the following rules :—

" 1. When in doubt as to the presence of pus, and emetin or ipecacuanha has not relieved symptoms, explore the liver for pus.

" 2. When the right half of the liver is invaded by pus, or the abscess is supra-hepatic, explore by a hollow needle, introduced between the right ribs, that is, transthoracically.

" When the left half of the liver is the seat of pus, cut down upon the part from the abdominal wall in front, and after packing off the exposed part explore by a hollow needle, or open the abscess straight away.

" 3. When the pus is found, transthoracically, introduce a trocar and cannula, remove the trocar, and through the cannula introduce a rubber tube, stretched upon a metal rod, so that a rubber tube larger than the lumen of the cannula can, when so stretched, be passed to the bottom of the cavity of the liver. Withdraw the cannula over the stretched tube, and slackening the rubber allow it to contract towards the bottom of the cavity. Withdraw the metal rod from the tube which is now *in situ*. Fix a syphon arrangement to the drainage tube, conduct it over the side of the bed to a bucket on the floor. Should drainage be too severe, as indicated by the presence of blood in the discharge after, say, 6 to 12 hours later, raise the bucket nearer to a level with patient's body, and thus lessen the intensity of the syphonage. When bile begins to

flow through the tube, say, after a week or two, or three, stop the syphonage and gradually withdraw the tube, shortening it from day to day, or substitute a smaller tube.

"4. When the abscess declares itself in the epigastric regions cut down upon it in the usual way, expose the liver, pack the part round with gauze, open the abscess, insert one or two drainage tubes the size of the forefinger, and deal with the wound on ordinary surgical principles. It is quite possible to use the trocar and cannula and syphonage for pus in the left half of the liver, and when unhygienic surroundings forbid opening the peritoneal cavity to reach the left lobe, use the trocar and cannula and syphonage.

"5. Emetin should be given systematically whilst the abscess is draining."

During the past twenty-five years the author had himself operated upon 142 cases by the method described, with 115 recoveries and 27 deaths.

The surgery of the colon was also described and conditions necessitating the removal of the spleen. Of these the chief was rupture, generally as a result of traumatism. The organ had, however, also been removed for simple splenic anaemia, 87·5 per cent. of such cases recovering and being cured. When cirrhosis was present in the liver as well as the spleen (Banti's disease) recoveries were much fewer—e.g., only about 50 per cent. The new theory of the connection of gall bladder troubles, gall stones, cirrhosis of the liver, haemolytic jaundice, and even cholecystitis, with diseases of the spleen and the treatment by splenectomy opened up, he believed, "a clinical factor of intense interest and a new venue of work for the surgeon."

Time did not permit of a discussion of the surgery of filariasis, bilharziasis, oriental sore, goundou and other tropical conditions.

G. C. L.

LOISELET. **Note sur un Procédé rapide pour faciliter l'Asepsie des Injections hypodermique.**—*Rev. de Méd. et d'Hyg. Tropicales.* 1914. Vol. 11. No. 1. p. 24.

The writer, who is Professor at the French Faculty of Medicine at Beyreuth, makes use of chloroform, which has the property of taking up water and killing micro-organisms instantaneously, for sterilisation in hypodermic injections. The needles are kept in carbolised oil. When he wants to inject he takes a needle from the oil, adapts it to the syringe and draws up purified chloroform several times into the body of the syringe. He then takes up the solution for injection. A drop of tincture of iodine is placed on the skin, which is not otherwise disinfected, and the puncture is at once made so that the needle takes with it a little of the iodine solution. Needle and syringe are afterwards cleaned again in the chloroform and the needle is replaced in the carbolised oil. It is not necessary to boil the instruments. The author uses purified chloroform, not anaesthetic chloroform. He has thus made many thousand injections, the majority with quinine, without any accident.

A. G. B.

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Pricolo (Professor A.) & Ferraro (Dr. G.); Strickland (Dr. C.).

Book Received.

Sommerville (David) [B.A., M.Sc., M.D., M.R.C.P. (Lond.), D.P.H. (Camb.), F.C.S.]. Practical Sanitary Science. A Handbook for the Public Health Laboratory.—2nd Edition, viii + 328 pp. With 79 text-figs. Demy 8vo. 1914. London: Baillière, Tindall & Cox, 8, Henrietta Street, Covent Garden, W.C. [Price 10/6 net].

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